



VISION SCREENING AND US POPULATION HEALTH: WHAT YOU NEED TO KNOW



Understand why comprehensive eye examination remains the best approach to improve population health.

BY LORI LATOWSKI GROVER, OD, PHD

Where do the US government's health care recommendations originate? And how valuable are they? Recommendations for clinical guidelines, preventive health screenings, and age-related procedures are key examples of guidelines that fall under the purview of the US Preventive Services Task Force (USPSTF). Evidence

is essential for creating trustworthy clinical guidelines (see my article "Using Evidence in Clinical Care to Improve Patient Outcomes" in the November/December 2020 issue¹) and encouraging wide-spread adoption of national preventive and primary health measures.

Over the past 2 decades, the value of primary eye care to overall health

has gained strength. Momentum for access to comprehensive eye examination is recognized by a greater diversity of health care stakeholders as fundamental to improving health.²⁻⁸ And, as the nation's front-line primary eye care providers, optometrists deliver the vast majority of needed evidence-based eye care identified in the 2010 Affordable Care Act as "essential" to children's health.²

ABOUT THE USPSTF

The USPSTF was created in 1984 as an "independent group of national experts in prevention and evidence-based medicine that works to improve the health of all Americans by making evidence-based recommendations about clinical preventive services such as screenings, counseling services, or preventive medications."⁹ At the request of the US Congress, the USPSTF seeks to "protect patients and ensure [that] clinicians receive high-quality recommendations by outlining the best methods for developing clinical practice guidelines."¹⁰

In short, the USPSTF aims to provide clinicians and patients with the best available information on the current science of prevention so that they can make informed health decisions.^{1,9,10}

Established in 1989, the Agency for Healthcare Research and Quality

ABOUT THE AHRQ

The AHRQ is the leading US federal agency charged with improving the safety and quality of the American health care system.¹¹ The AHRQ develops the “knowledge, tools, and data needed to improve the health care system and help Americans, health care professionals, and policymakers make informed health decisions.”¹¹ It focuses on three main areas: investing in research on the US health care delivery system to help better understand how to improve health care quality; creating educational material for health care professionals to translate research into practice; and generating measures and data to support health care-related policies.¹¹

The 1999 Institute of Medicine report “To Err Is Human” documented serious patient safety problems in the US health care system. Use of AHRQ research and resources prevented millions of errors and saved approximately \$12 billion in a 3-year period, according to the AHRQ.¹¹ In addition, AHRQ’s Medical Expenditure Panel Survey data helped the Medicaid and CHIP Payment and Access Commission develop estimates of eligibility for Medicaid and the Children’s Health Insurance Program. The Congressional Budget Office also uses AHRQ data in estimating the budgetary impact of Congressional proposals.¹¹

(AHRQ) was authorized by Congress to provide “scientific, technical, administrative, and dissemination support” to the USPSTF.¹¹ The 1998 Public Health Service Act and the 2010 Patient Protection and Affordable Care Act (ACA) each instruct the AHRQ to provide this support, which includes assisting with day-to-day operations, producing evidence reports, ensuring the use of USPSTF methods, disseminating recommendations, and appointing of new USPSTF members.¹¹ For more information about this agency, see *About the AHRQ*.

The Department of Health and Human Services (HHS) also supports the USPSTF. However, the USPSTF functions as an independent body and does not require approval from AHRQ or HHS. The 16 members of the USPSTF, most of whom are practicing clinicians, have backgrounds in

primary care or preventive medicine (including family medicine, internal medicine, pediatrics, obstetrics/gynecology, nursing, and behavioral health).⁹ To learn more about the process by which USPSTF creates new recommendations for preventive services, see *Developing Recommendations*.

VISION SCREENING AND US POPULATION HEALTH

Existing vision screening data remain disparate and fragmented due to subjective methodologies and interpretations, and for more than a century no universally accepted definition or recognized process of vision screening among clinicians, researchers, health care professionals, states, school districts, service organizations, and other entities that aim to screen has emerged.

A prime example of this longstanding confusion is how the USPSTF refers to its findings on amblyopia screening for 3-to-5-year-old children as “vision screening,”¹² when this recommendation is limited to a single disease seen in a narrow segment of children. This suggests—as the American Optometric Association has previously requested¹³—that the USPSTF should rename its recommendation for vision screening to “amblyopia screening in children 3 to 5 years old” to reflect the scope of evidence and findings.^{9,14}

USPSTF Position on Vision Screening

According to the USPSTF, more research is required to understand the effects of vision screening on health and determine if an evidence-based approach to screening can be found that shows positive impacts on health.¹² In addition, there is “a need for studies that examine the benefits and harms of vision screening

AT A GLANCE

- The US Preventive Services Task Force aims to provide clinicians and patients with the best available information on preventive health.
- Vision screening is an ill-defined and highly variable service that lacks supportive evidence and official recommendations.
- Comprehensive eye examination is the optimal front-line approach to improving population health and supporting childhood development.

and treatment in children younger than 3 years and the long-term benefits and harms of preschool vision screening on health outcomes, such as quality of life, school performance, developmental trajectory, and functioning.”¹² Furthermore, evidence on vision screening in older adults is “lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.”¹²

It is important to note that, although the USPSTF “concluded with moderate certainty that amblyopia screening in children 3 to 5 years old has moderate net-benefit as compared with no screening,” there is no comparison of the value of screening relative to eye examination.¹⁵ The USPSTF defines “moderate” evidence as “sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by [many] factors,” such that “as more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion.”¹²

THE TAKE-HOME

Care must be taken in promoting vision screening as beneficial because it is not recognized by the USPSTF as a population health intervention of value for infants and children of all ages, apart from amblyopia screening for children 3 to 5 years of age. The health effects of vision screening versus no screening will remain unknown,¹² until the USPSTF can identify substantive evidence to fill gaps and reevaluate recommendations.

Health screening recommendations are determined by weighing measurable benefits and harms substantiated by evidence. This analysis is how population health recommendations gain national endorsement. There are many instances in which the USPSTF has recommended against a service, where evidence for the service was lacking, or where research showing

DEVELOPING RECOMMENDATIONS

The USPSTF follows a specific process in developing its recommendations.¹⁰

STEP 1: A topic nomination is received by the USPSTF.

STEP 2: The nomination is reviewed based on its relevance to disease prevention and primary care, its importance for public health, and its potential impact. If it concerns a current recommendation, the USPSTF determines whether that should be updated.

STEP 3: A research plan that includes questions and potential target populations is created in collaboration with researchers from an evidence-based practice center and is posted for public comments.

STEP 4: The research plan is revised based on comments and is republished.

STEP 5: A draft recommendation statement is developed using evidence about potential harms and benefits gathered from peer-reviewed scientific journals.

STEP 6: The draft statement is posted for public comments.

STEP 7: The recommendation is revised based on comments and is republished, along with the evidence review.

STEP 8: The recommendation is published in a peer-reviewed scientific journal.

Note: The cost of providing the recommended service is not considered in the USPSTF assessment.¹⁴ The task force also recognizes that “clinical decisions involve more considerations than evidence alone” and that clinicians “should understand the evidence but individualize decision-making to the specific patient or situation.”¹⁰

harms outweighing benefits resulted in USPSTF modifying its recommendations to reflect new findings.⁹ Due to the lack of documented benefits of vision screening and possible risks, support for vision screening at the population level remains unsubstantiated.¹² Implementation of vision screening could potentially harm health, especially due to delayed interventions for missed diseases and

conditions identified with comprehensive eye exams.

Regarding the USPSTF recommendation for amblyopia screening in children 3 to 5 years of age, recall that amblyopia is one of many eye diseases—along with more than 270 systemic diseases—that can be identified through a comprehensive eye examination.^{16,17} Many other national entities recognize the importance of primary eye care to overall

health, as avoidance of comprehensive eye examination has been shown to delay treatment that can prevent negative health impacts.²⁻⁸

Why This Matters to Population Health

From a public health perspective, an effective health screen must be valid, sensitive, specific, and reliable. It must accurately represent targeted health outcomes for a group of individuals and properly assess the distribution of outcomes within the targeted group. Without more substantive data on vision screening, there is limited opportunity to identify targeted health problems or conditions for intervention.

Aside from the USPSTF-recommended amblyopia screening in children 3 to 5 years of age, vision screening does not merit the same presumption of value that the health community affords USPSTF recommendations for other screenings such as mammography, colonoscopy, and screening for hypertension.¹⁴

In the absence of official guidelines on vision screening, optometrists and clinical teams must continue to advocate for the visual and overall health of children as a significant public health concern.¹⁸ Due to the prevalence of eye disorders in children and adults, other national stakeholders, including the American Public Health Association, the National Eye Institute, the Centers for Disease Control and Prevention, and the US Department of Health and Human Services have voiced support for comprehensive eye examination (and for prescribed treatments such as glasses and contact lenses) as essential to health.^{2,4-8} In addition, the National Academies of Sciences, Engineering, and Medicine concluded in 2016 that “eye examination is the gold standard” in clinical care to

most accurately identify and diagnose vision problems.³

Contemporary eye care is safe, timely, effective, equitable, and patient-centered.¹⁹ Delivery of care to infants and children is robustly taught in optometry school curricula and in residency training. As front-line primary eye care providers, optometrists deliver most of the evidence-based eye care identified by the 2010

IN THE ABSENCE OF OFFICIAL GUIDELINES ON VISION SCREENING, OPTOMETRISTS AND CLINICAL TEAMS MUST CONTINUE TO ADVOCATE FOR THE VISUAL AND OVERALL HEALTH OF CHILDREN AS A SIGNIFICANT PUBLIC HEALTH CONCERN.

Affordable Care Act as “essential” to children’s health.² In striving for health equity, health disparities must be eliminated, especially for the most vulnerable children. Until future vision screening research can demonstrate findings of evidence-based population health benefits that outweighs the risks—especially when compared to the recognized value of comprehensive primary optometric care—policies and positions that promote vision screening remain questionable approaches to achieving acknowledged, desirable population health outcomes. ■

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