

An Overview of National Data on Sun-Protective Behaviors

Presentation to the National Academies committee on
Environmental Impact of Currently Marketed Sunscreens
and Potential Human Impacts of Changes in Sunscreen
Usage

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Skin Cancer: A Serious Public Health Problem

- Nearly 5 million adults are treated for skin cancer each year in the United States.
- \$8.1 billion is spent in treatment costs annually.
- Annual spending for skin cancer treatment has increased rapidly.
- Skin cancer can often be prevented by avoiding overexposure to UV radiation.



Strategies to Reduce UV Exposure from the Sun

- Shade (natural or man-made)
- Protective clothing and accessories
 - Long-sleeved shirt
 - Long pants or long skirt
 - Wide-brimmed hat
 - Sunglasses
- Broad spectrum sunscreen (SPF 15+)
- Limiting time outdoors during midday



Additional Details about Sunscreen

- Absorbs, reflects, or scatters the sun's rays
- Key features to look for:
 - Broad spectrum (protects against both UVA and UVB rays)
 - SPF 15+ (protects against sunburn, skin cancer, and early skin aging)
- Needs to be reapplied every two hours and after swimming, sweating, and toweling off
- Works best when combined with other forms of sun protection





Sun Protection



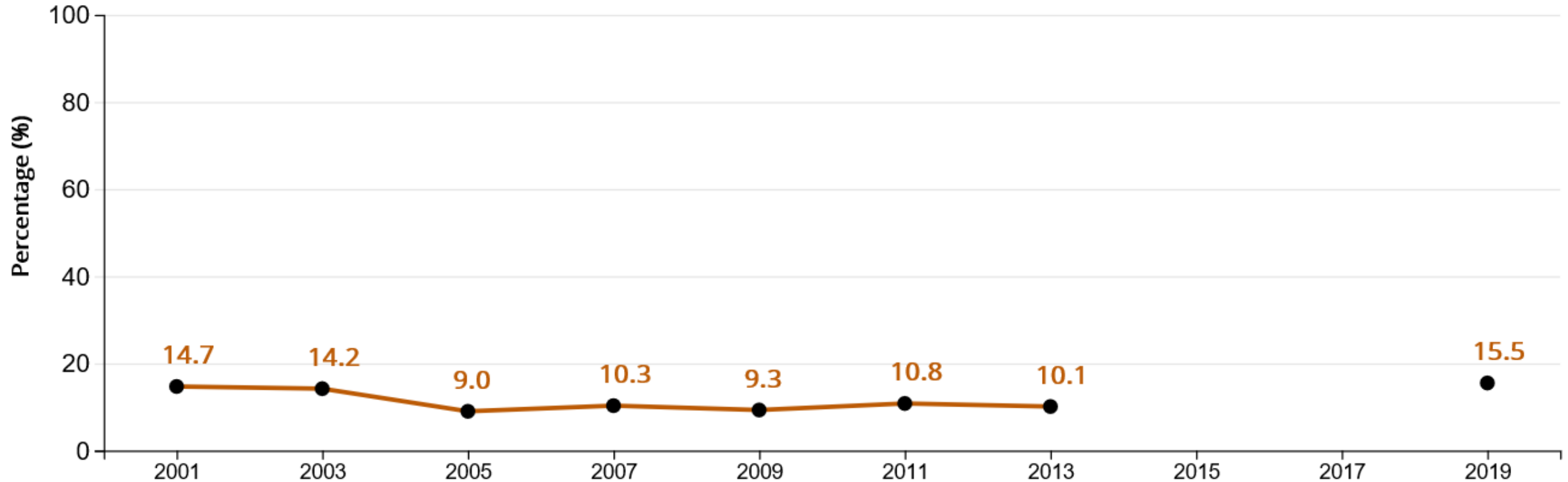
- A three-stage cluster sampling design to achieve a nationally representative sample of US students in grades 9–12
- Conducted every other year (2017, 2019, 2021, etc.)
- Weighted based on student sex, race/ethnicity, and grade to adjust for school and student nonresponse and oversampling of black and Hispanic students
- Analytic sample in 2019 included 13,677 students

www.cdc.gov/healthyyouth/data/yrbs/

YRBS Question about Sunscreen Use

- When you are outside for more than one hour on a sunny day, how often do you wear sunscreen with an SPF of 15 or higher?
 - A. Never
 - B. Rarely
 - C. Sometimes
 - D. Most of the time
 - E. Always
- Included on the national YRBS in 2001-2013 and in 2019

Sunscreen Use among High School Students



* When being outside for more than one hour on a sunny day.

Missing data point indicates that data were not available.

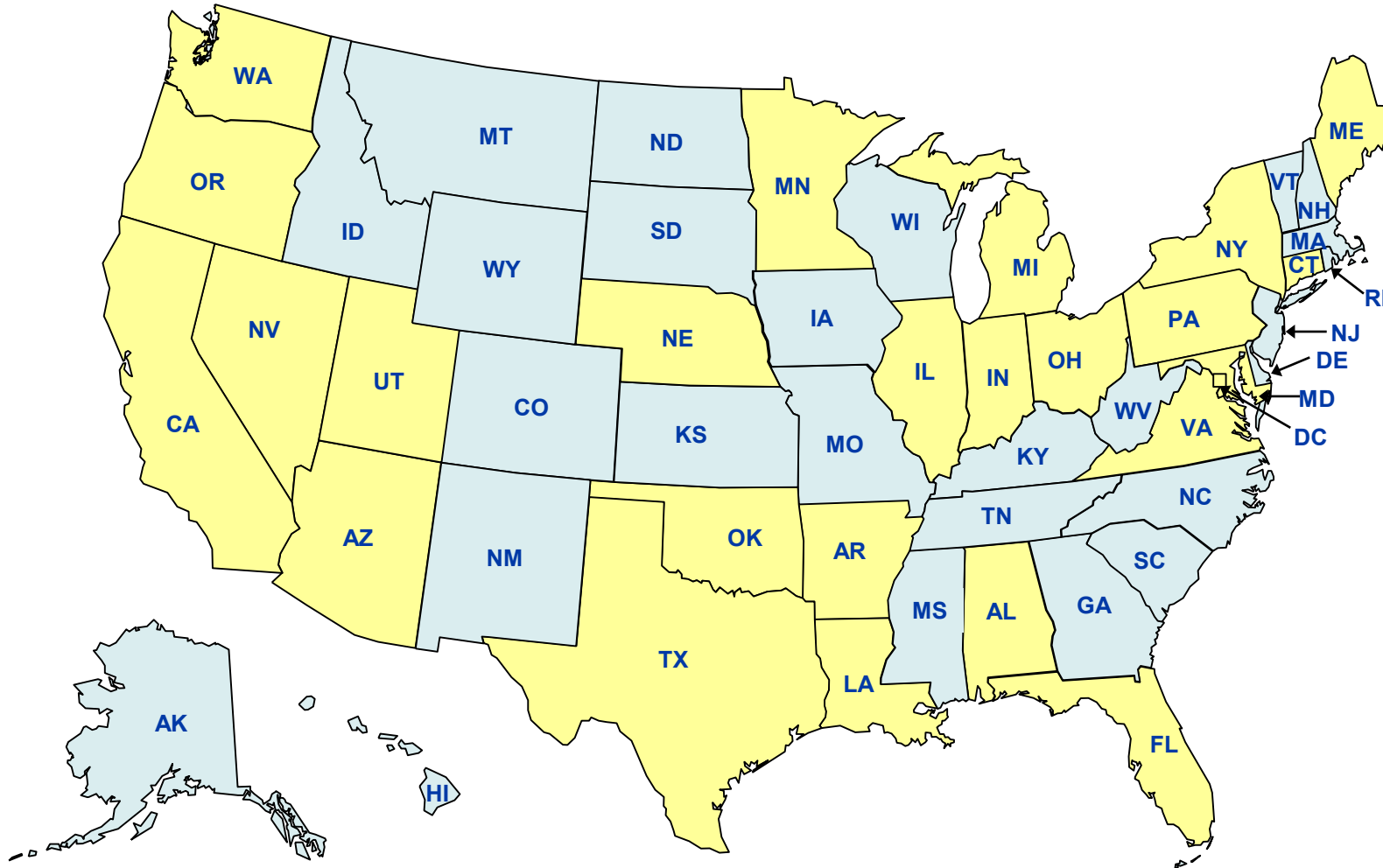
States Allowing Sunscreen Use in Schools 2021



Sunscreen law, regulation, or guidance in place



No law, regulation, or guidance in place





National Health Interview Survey

- One of the nation's largest in-person household health surveys
- Provides data on the health of the US civilian noninstitutionalized population aged 18 years and older
- Sampling and interviews done continuously throughout the year
- Each month's sample is nationally representative.
- Beginning in 2019, the sample is expected to yield 30,000 sample adult and 9,000 sample child completed interviews.

www.cdc.gov/nchs/nhis/

NHIS Questions about Sun Protection

When you go outside on a warm sunny day for MORE than one hour, how often do you. . .

- Stay in the shade?
- Wear a hat that shades your face, ears AND neck such as a hat with a wide brim all around?
- Wear a long-sleeved shirt?
- Wear long pants or other clothing that reaches your ankles?
- Use sunscreen?

Response options: *Always; Most of the time; Sometimes; Rarely; Never*

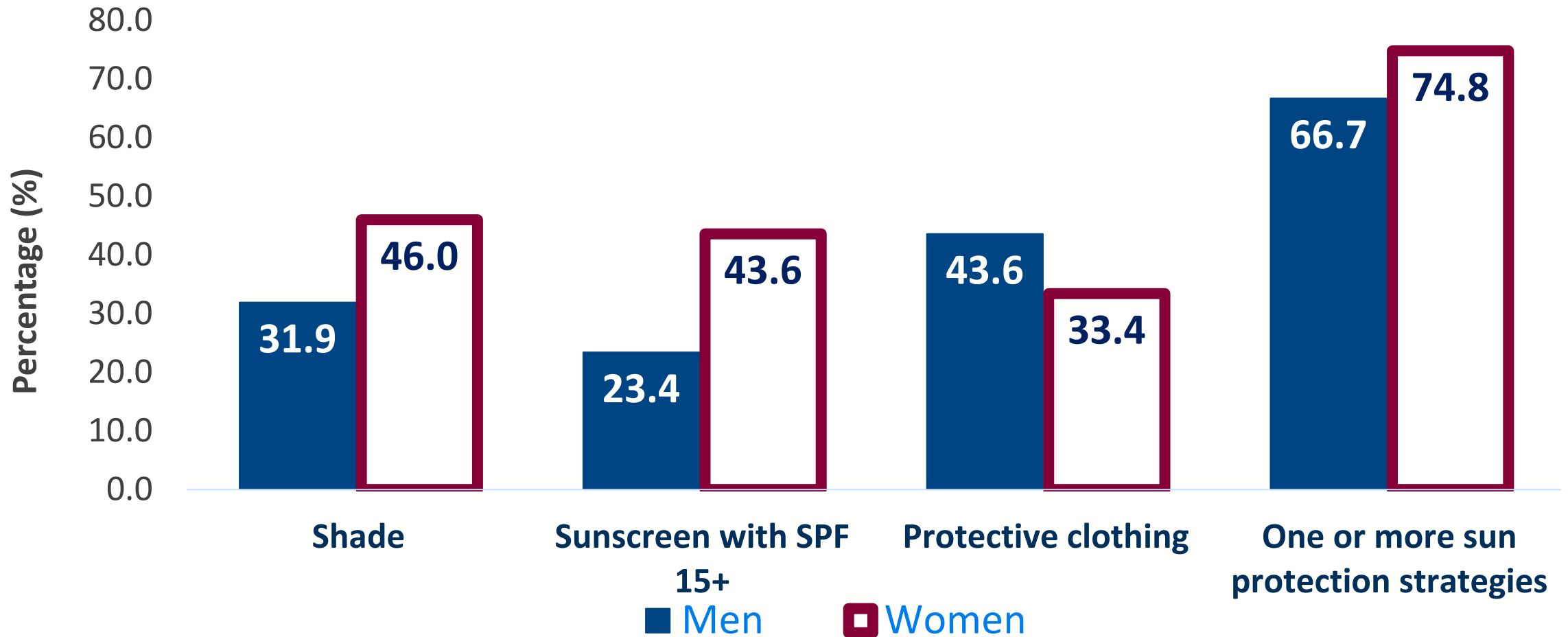
Included in 2000, 2005, 2010, 2015, 2020

Additional NHIS Questions about Sunscreen

- What is the SPF number of the sunscreen you use MOST often?
 - a) 1-49
 - b) 50+
 - c) More than one, different ones, other
- If the respondent mentions more than one or different SPF values, they are asked:
 - Is the SPF usually 1-14 or 15-50?

Included in 2000, 2005, 2010, and 2015

Sun Protection Use Among Adults in 2015 (N=31,162)



*Always or most of the time when outside on a warm sunny day for MORE than one hour.

Source: 2015 National Health Interview Survey. https://progressreport.cancer.gov/prevention/sun_protection.

Additional Data on Sunscreen Use

- Cross-sectional data from the 2013 Porter Novelli SummerStyles survey
- Online panel survey
- Sample = 4,033 US adults



Details about the survey methods available online:

<https://styles.porternovelli.com/consumer-youthstyles/>

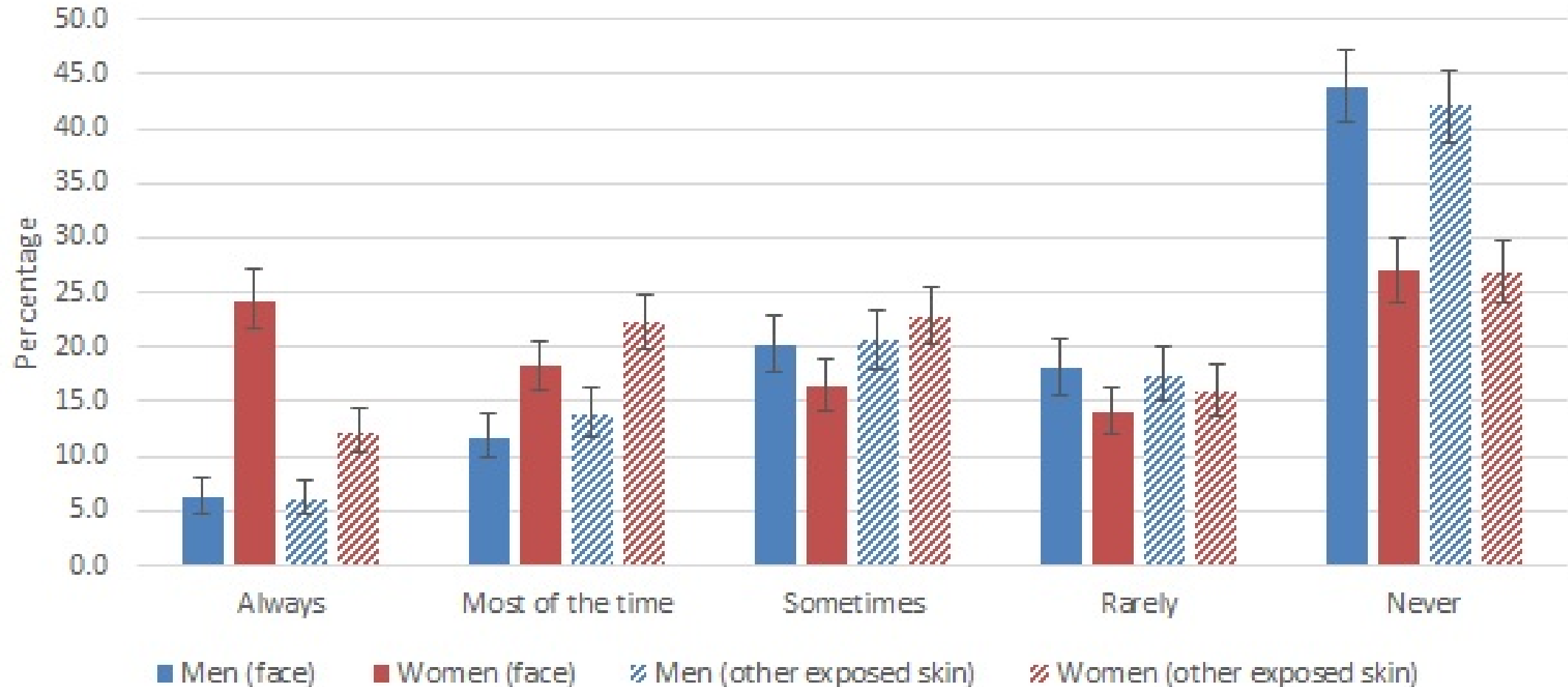
2013 SummerStyles Survey Questions

When you go outside on a warm sunny day for MORE than one hour, how often do you. . .

- Use sunscreen on your face?
- Use sunscreen on other exposed skin (not including your face)?

Response options: *Always; Most of the time; Sometimes; Rarely; Never*

Sunscreen Use on the Face Versus Other Exposed Skin (N=4,033)



Source: Holman et al. Patterns of sunscreen use on the face and other exposed skin among US adults. JAMA Dermatology, 2015. <https://doi.org/10.1016/j.jaad.2015.02.1112>



Sunburn

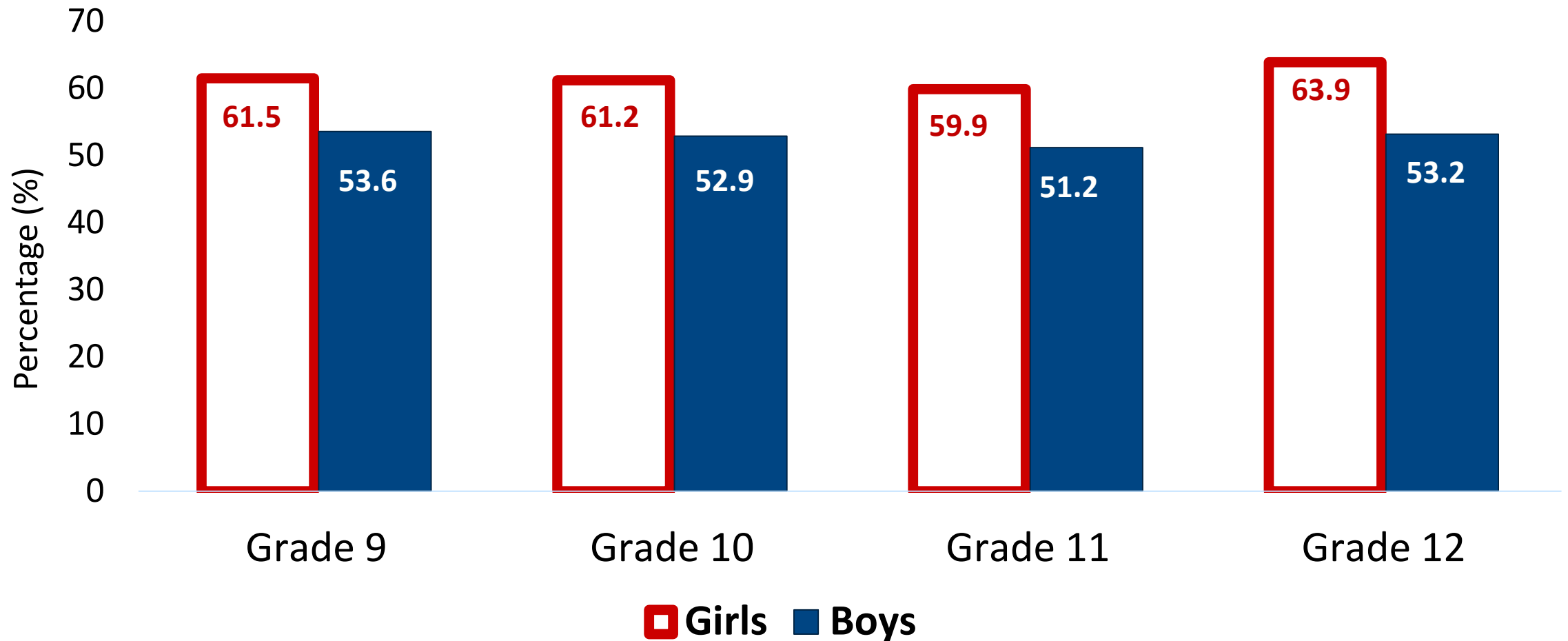
YRBS Sunburn Question

During the past 12 months, how many times have you had a sunburn? (Count the number of times even a small part of your skin turned red or hurt for 12 hours or more after being outside in the sun or after using a sunlamp or other indoor tanning device.)

- A. 0 times
- B. 1 time
- C. 2 times
- D. 3 times
- E. 4 times
- F. 5 or more times

Included in 2015, 2017, and 2021

Sunburn Among High School Students in 2017 (N=14,765)



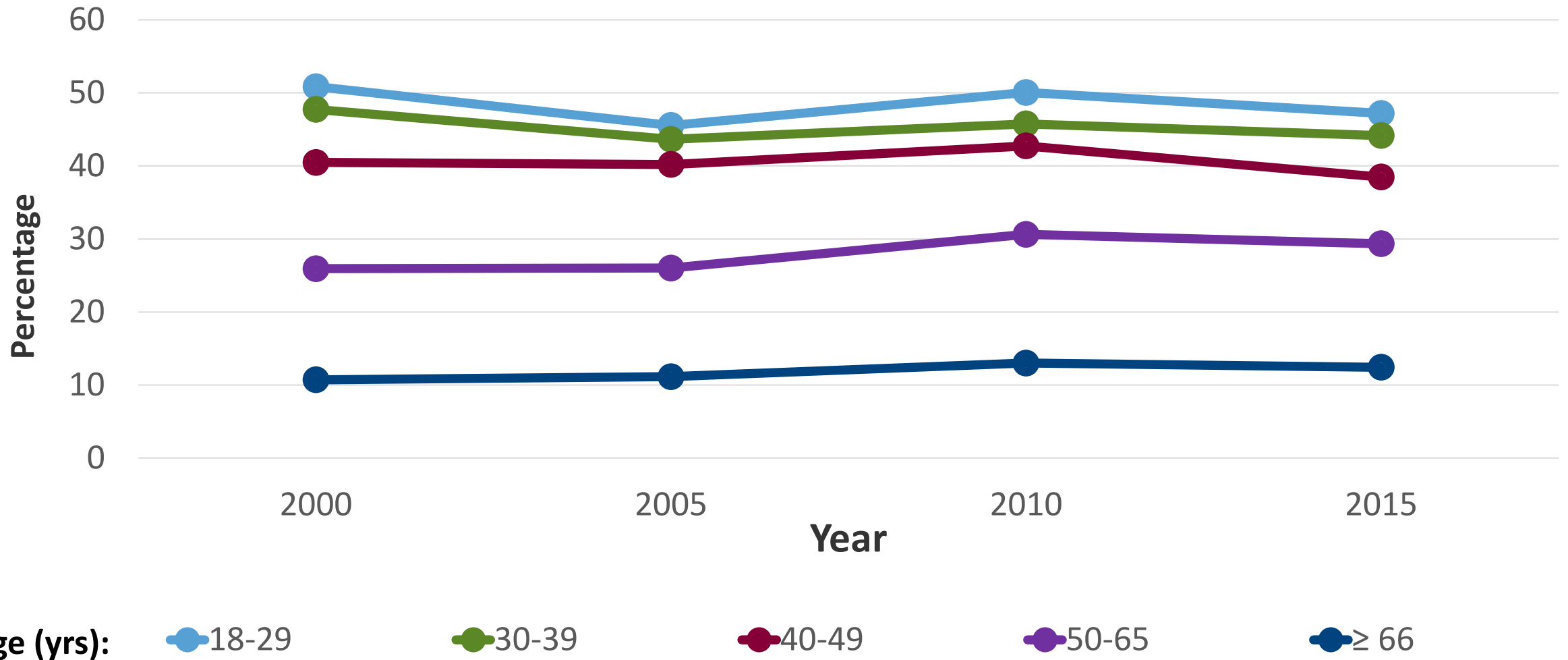
NHIS Sunburn Question

DURING THE PAST 12 MONTHS, how many times have you had a sunburn?

*Read if necessary: By "sunburn" we mean even a small part of your skin turns red or hurts for 12 hours or more. Also include burns from sunlamps and other indoor tanning devices.

Included in 2000, 2005, 2010, 2015, and 2020

Sunburn Prevalence Among Adults Over Time



Source: Holman DM, Ding H, Berkowitz Z, Hartman AM, Perna FM. Sunburn prevalence among US adults, National Health Interview Survey 2005, 2010, and 2015. JAAD 2019;80(3):817-820. <https://doi.org/10.1016/j.jaad.2018.10.044>.

Additional Data on Sunburn

- Cross-sectional data from the 2018 Porter Novelli SummerStyles survey
- Online panel survey
- Sample = 4,088 US adults



Details about the survey methods available online:

<https://styles.porternovelli.com/consumer-youthstyles/>

2018 SummerStyles Survey Questions

- Asked participants about their most recent sunburn
 - Activities in which they were engaging
 - Sun protection strategies (if any) they were using
 - Body parts that got burned
- Excluded participants who
 - Couldn't recall their most recent sunburn or had never been sunburned (n=959)
 - Said most recent sunburn was from indoor tanning (n=23)
- Final analytical sample = 3106 adults

Activities Adults Were Engaged in When their Most Recent Sunburn Occurred (N=3106)*



*Categories not mutually exclusive (except "don't know/remember").

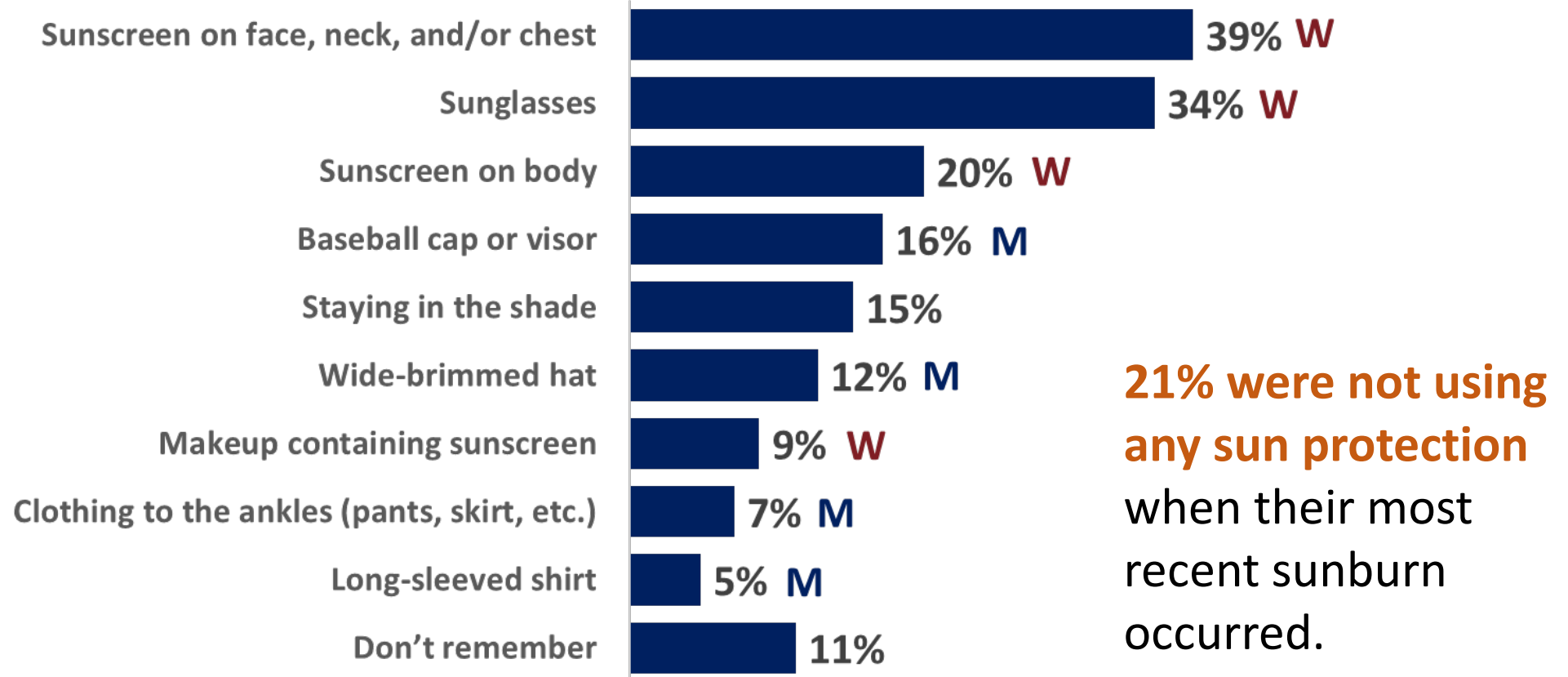
W (more frequently reported among women; $p < 0.05$)

M (more frequently reported among men; $p < 0.05$)

Source: Holman et al. The Context of Sunburn Among U.S. Adults: Common Activities and Sun Protection Behaviors. AJPM. 2021; 60(5).

<https://doi.org/10.1016/j.amepre.2020.12.011>

Sun Protection Adults Were Using When their Most Recent Sunburn Occurred (N=3106)*



*Categories not mutually exclusive (except “don’t remember” and “was not using any sun protection”).

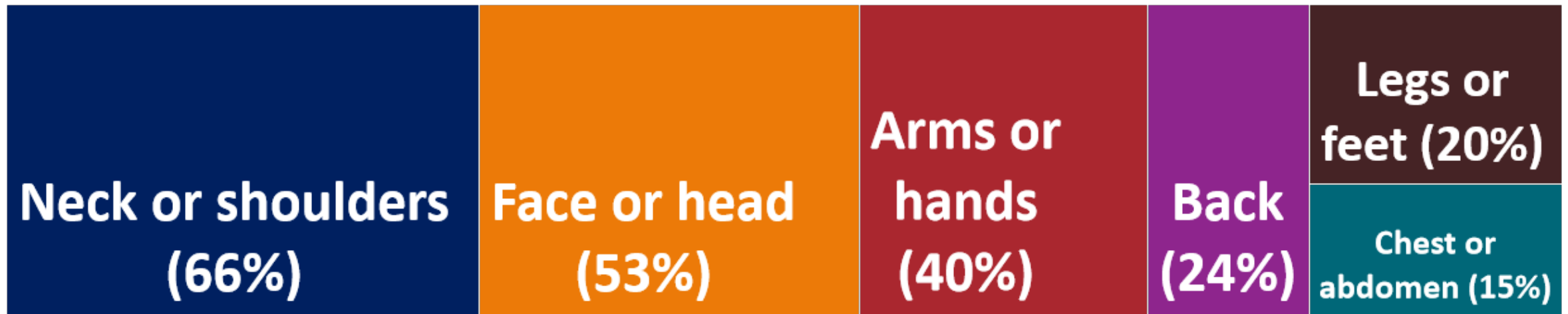
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Locations of Adults' Most Recent Sunburn (N=3106)*



***Categories are not mutually exclusive**

Key Points

- Sunburn
 - Remains common across age groups.
 - Often occurs in the context of aquatic activities.
- Sunscreen
 - Is one of the more frequently used forms of sun protection.
 - Is not always used in a manner that prevents sunburn.
- A combination of sun protection strategies
 - Likely confers better protection than sunscreen alone.
 - Could be tailored to specific contexts and activities.





Thank You!

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For more information, visit www.cdc.gov/cancer/skin.



Division of Cancer Prevention and Control

Reliable. Trusted. Scientific.