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Do you see what I see? Improving color accessibility and organization of complex data with the microshades CVD color palette

Emory Neer, Erin Dahl, Kate Bowie, Lisa Karstens PhD

nemory@pdx.edu, dahleri@ohsu.edu, bowiek@ohsu.edu, karstens@ohsu.edu

Portland State University, Build EXITO, Oregon Health and Science University

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Abstract

Color Vision Deficiency (CVD), commonly called colorblindness, is estimated to affect 300 million people worldwide, which is comparable to the most recent US population estimate. Due to this high prevalence it is likely that there is at least one colorblind person in any audience. Though often called color "blindness", CVD does not equate to complete blindness to color, rather some colors are harder to distinguish from one another. It is important to consider CVD accessibility when creating scientific figures that use color to relay information. Using a colorblind simulator and a colorblind friendly palette are steps we can take to ensure that figures are interpretable to all audience members.

One popular CVD accessible palette is the *Okabe Ito Palette* which provides 8 distinguishable colors. However, some fields of science require more colors to represent their data. For example, in microbiome science it is common to represent tens to hundreds of bacterial taxa in one figure, for which 8 colors is insufficient. To overcome this limitation, we created the *microshades CVD palette* for complex data by expanding on the *Okabe Ito Palette*. The new palette contains 6 parent colors with 5 distinct shades for a total of 30 colors. This lightening talk will introduce the expanded palette as well as share resources for creating CVD friendly figures, including the R package *microshades*. *Microshades* is a package for improving data visualization and color accessibility, and allows users to directly apply the *microshades CVD palette* to their figures.