

COMMENTARY

Making Slides? Be Kind to Your Red-Green Colorblind Colleagues!

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Red on slides! Red on slides! That was what was going through my mind as I listened to the first four presentations at the SGIM annual meeting. All presenters described excellent research and delivered their presentations extremely well, but since I am red-green colorblind, I had difficulty interpreting some of their graphs, as all used red to highlight some of their findings. Truth be told, they could have used red on every slide—I can't tell! For example, I can't tell my beautiful wife has red hair, and I didn't notice the house across the street from our home had a pink front door for six months!

As many of you know, red-green colorblindness is not rare. It is an X-linked recessive condition that affects about 8% of men and less than 1% of women.¹ One would think this common condition would have altered presentation color schemes, but I notice at least one "red on slides" presentation at every meeting. As my fellows are tired of hearing me comment on this (among many other things), I thought it might be time to expand my audience.

So if I am "colorblind," how can I see red at all? Well, colorblindness

is really a misnomer. I can see red and green but not certain shades of them. I never confuse red for green but quite frequently call something gray when it is actually green, as well as brown instead of red. For a clearer example, search the Internet for "red green 74 21 test."

Over time, I have developed some compensatory mechanisms. If I compare and contrast each shape, I can usually tell which one is red by context (e.g. the non-black, non-yellow line must be red). This comes at the cost of cognitive overload. If I am spending my limited mental capacities on "Which is red?", then I'm not really concentrating on what is being said.

So what color combinations work? Large red bars on white next to another bar that is different in shade as well as color, such as light blue, is fine. (Do they look different if printed in grayscale?) Larger is better for me to discern the color. Insertion of a red circle around an abnormal *using animation* is OK, provided there are no other highlighting colors.

What doesn't work? Any thin red or green line. These lines become gray, brown, or impossible to differentiate from the background. High-

lighting abnormalities in a table with red becomes a "Where's Waldo?" exercise. I must look at each number individually to sort them out. Lastly, putting red on the ubiquitous blue background is literally nauseating for me due to the way the colors blend.

In summary, nearly 10% of your male colleagues are red-green colorblind and will miss important details in your presentation if these colors are not used carefully. Restrict red and green to large shapes on white backgrounds or to highlight abnormalities using animation without other highlighting colors. If you are unsure if red is OK on your slides, print it out in grayscale or ask a colorblind friend. We would very much appreciate it!

Disclaimer: The opinions are solely those of the author and do not reflect the official policies of the Uniformed Services University, the United States Army, or the Department of Defense.

Reference

1. Spalding JA. Colour vision deficiency in the medical profession. *Br J Gen Pract* 1999; 49:469-75.