

Promoting Learning through Purposeful Imagery

Center for Teaching and Learning





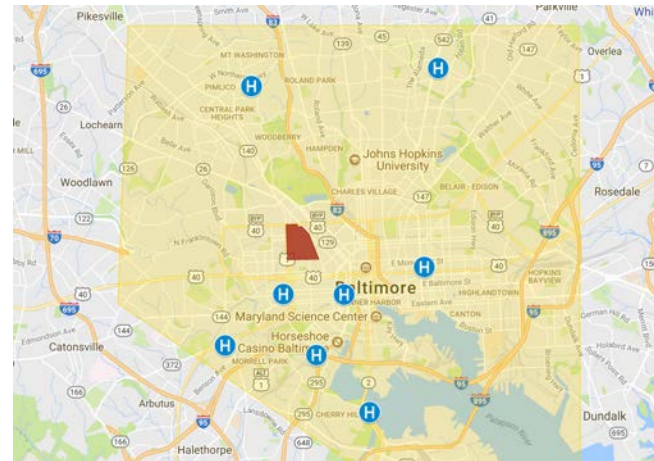
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of PUBLIC HEALTH

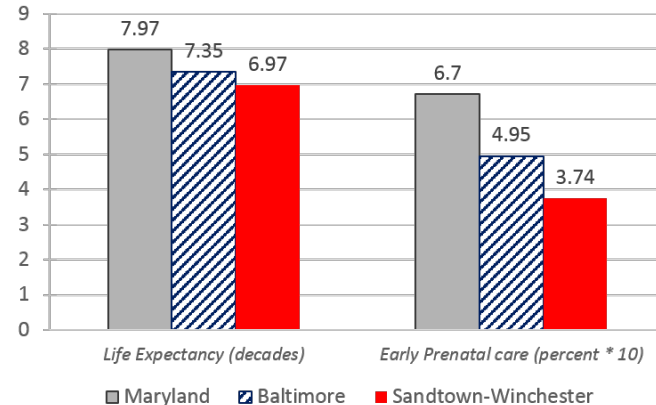


Pedagogy: Rationale and Implications

What is the Story Here?



Comparison of Health by Geography



Hancock, Jay. "In Freddie Gray's Baltimore, The Best Medical Care Is Nearby But Elusive." *NPR*, NPR, 15 Feb. 2016, Retrieved 8 Oct 2017 from www.npr.org/sections/health-shots/2016/02/15/466550095/in-freddie-grays-baltimore-the-best-medical-care-is-nearby-but-elusive.

In Freddie Gray's Baltimore, The Best Medical Care Is Nearby But Elusive

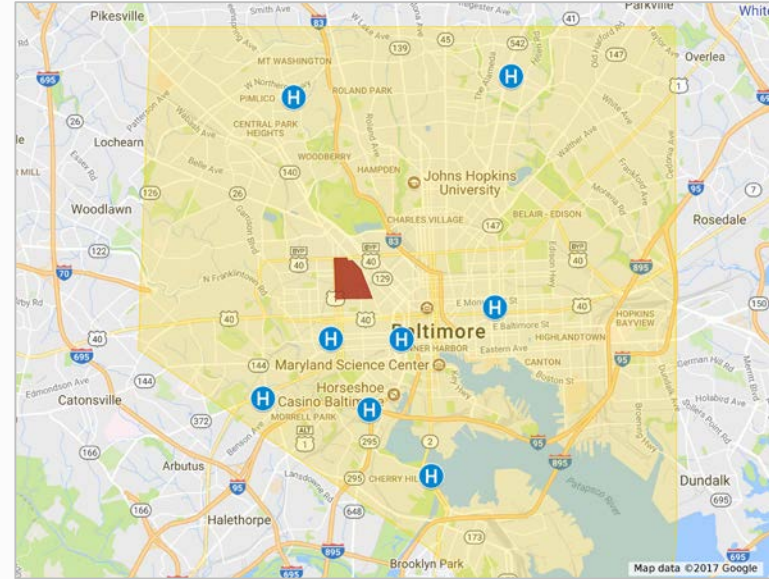
- ▶ West Baltimore's lower-income residents
 - ▶ Use nearby hospital services at higher-than-average rates
 - ▶ Get poorer results compared to well off counterparts
- ▶ Sandtown health averages*
 - ▶ The typical Sandtown resident lives a decade less than the average Marylander
 - ▶ Fewer than 40 percent of the Sandtown population gets adequate early prenatal care compared to almost 50 percent in Baltimore and nearly 70 percent in the state
 - ▶ Gun-related homicides in Sandtown-Winchester are triple that of the city (18 times the rate of the state)

**Source: Baltimore City Health Department, FBI, Maryland Department of Health and Mental Hygiene, Baltimore Neighborhood Indicators Alliance. All figures are for 2013.*

In Freddie Gray's Baltimore, The Best Medical Care Is Nearby But Elusive – with Images, 1

- ▶ West Baltimore's lower-income residents
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- ▶ Sandtown health averages*
 - ▶ The typical Sandtown resident lives a decade less than the average Marylander.
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**Source: Baltimore City Health Department, FBI, Maryland Department of Health and Mental Hygiene, Baltimore Neighborhood Indicators Alliance. All figures are for 2013.*



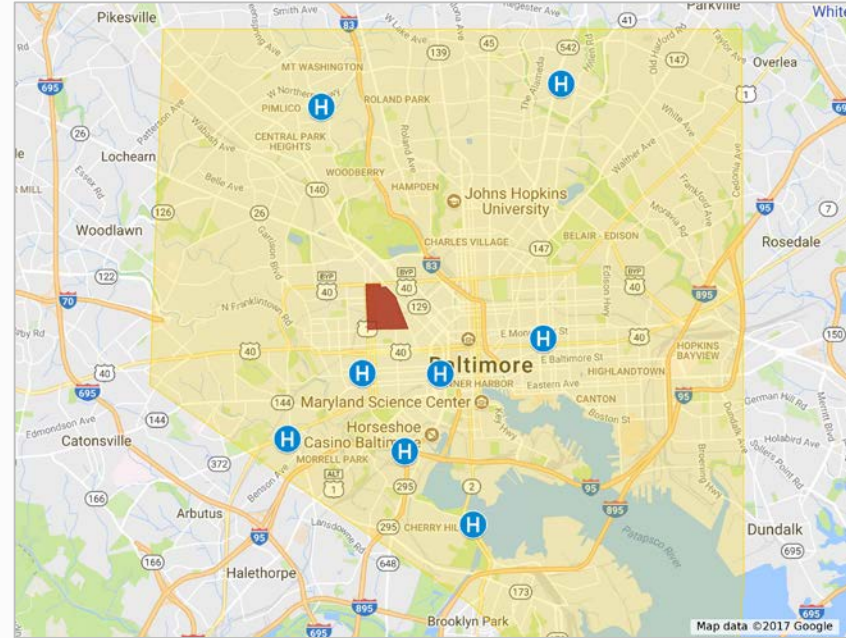
Hancock, Jay. "In Freddie Gray's Baltimore, The Best Medical Care Is Nearby But Elusive." *NPR*, NPR, 15 Feb. 2016, Retrieved 8 Oct 2017 from www.npr.org/sections/health-shots/2016/02/15/466550095/in-freddie-grays-baltimore-the-best-medical-care-is-nearby-but-elusive .

Map data ©2015 Google

In Freddie Gray's Baltimore, The Best Medical Care Is Nearby But Elusive – with Images, 2



- ▶ West Baltimore's lower-income residents
- ▶ Use nearby hospital services at higher-than-average rates
- ▶ Get poorer results compared to well off counterparts



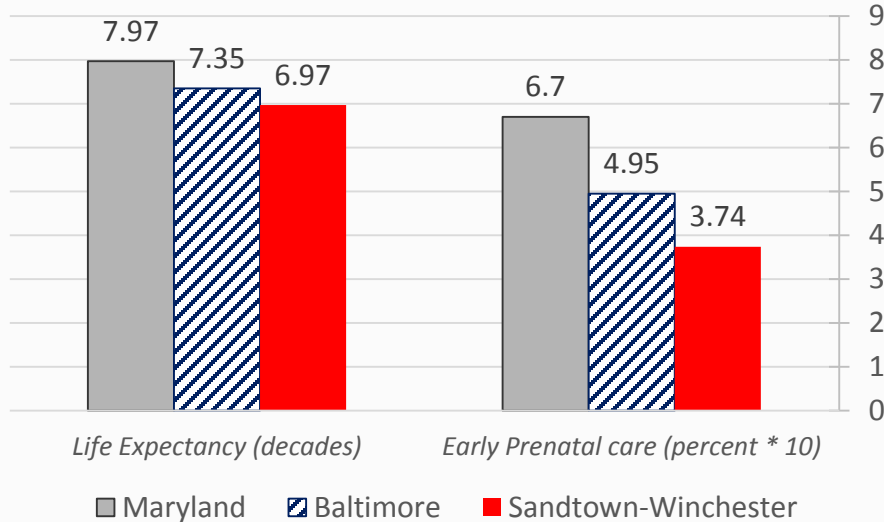
Map data ©2015 Google

1522–1556 MCKEAN AVENUE, BALTIMORE. Photograph by Melissa Archer, Project Manager, Maryland Department of Housing & Community Development, 2017 January 24. CC BY 2.0

Hancock, Jay. "In Freddie Gray's Baltimore, The Best Medical Care Is Nearby But Elusive." *NPR*, NPR, 15 Feb. 2016. Retrieved 8 Oct 2017 from www.npr.org/sections/health-shots/2016/02/15/466550095/in-freddie-grays-baltimore-the-best-medical-care-is-nearby-but-elusive .

In Freddie Gray's Baltimore, The Best Medical Care Is Nearby But Elusive – with Images, 3

Comparison of Health by Geography



- ▶ The typical Sandtown resident lives a decade less than the average Marylander*.
- ▶ Fewer than 40 percent of the Sandtown population gets adequate early prenatal care compared to almost 50 percent in Baltimore and nearly 70 percent in the state*
- ▶ Gun-related homicides in Sandtown-Winchester are triple that of the city (18 times the rate of the state)*

*Source: Baltimore City Health Department, FBI, Maryland Department of Health and Mental Hygiene, Baltimore Neighborhood Indicators Alliance. All figures are for 2013.

In Freddie Gray's Baltimore, The Best Medical Care Is Nearby But Elusive – with Images, 4

Gun Related Homicides Comparison



- ▶ The typical Sandtown resident lives a decade less than the average Marylander*.
- ▶ Fewer than 40 percent of the Sandtown population gets adequate early prenatal care compared to almost 50 percent in Baltimore and nearly 70 percent in the state*
- ▶ Gun-related homicides in Sandtown-Winchester are triple that of the city (18 times the rate of the state)*

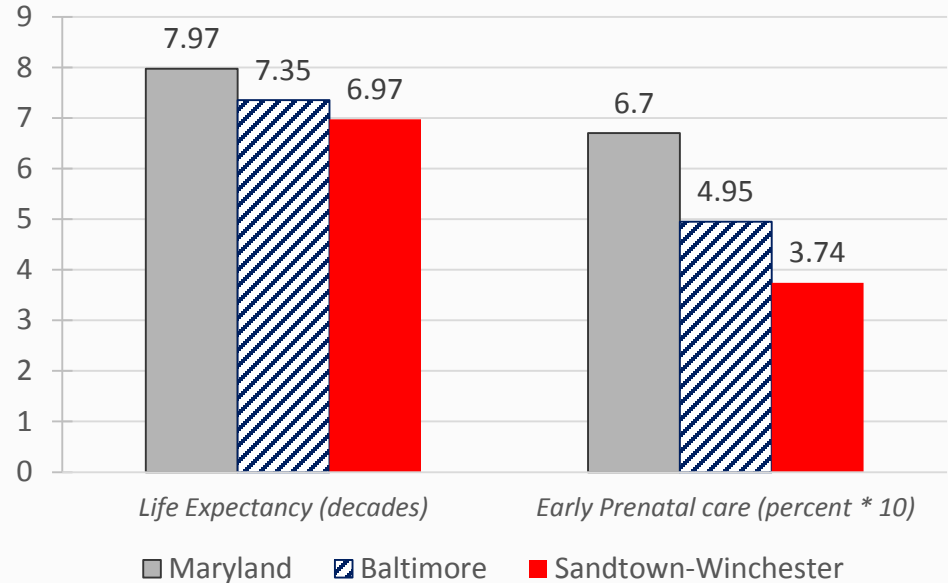
*Source: Baltimore City Health Department, FBI, Maryland Department of Health and Mental Hygiene, Baltimore Neighborhood Indicators Alliance. All figures are for 2013.

In Freddie Gray's Baltimore, The Best Medical Care Is Nearby But Elusive – with Images, 5

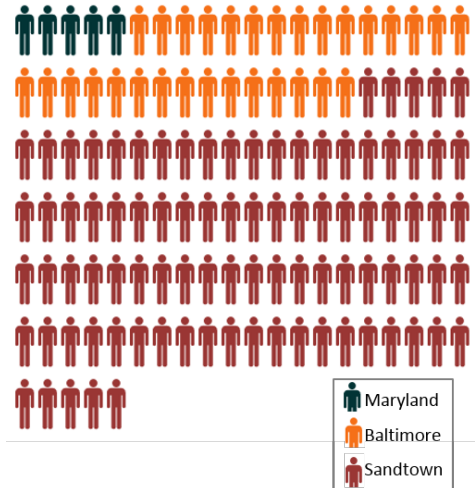
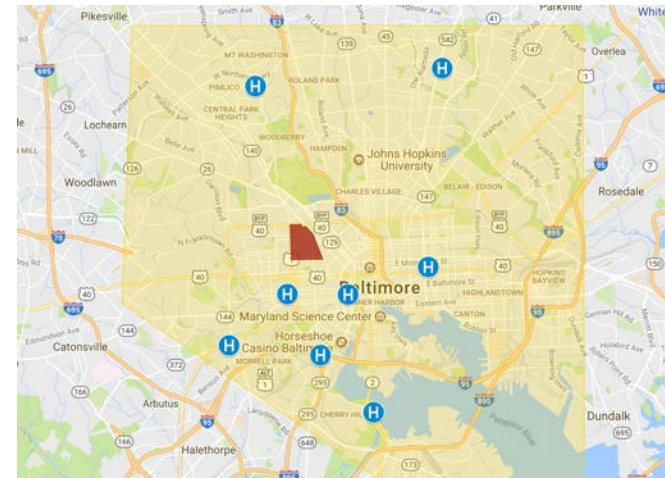
Gun Related Homicides Comparison



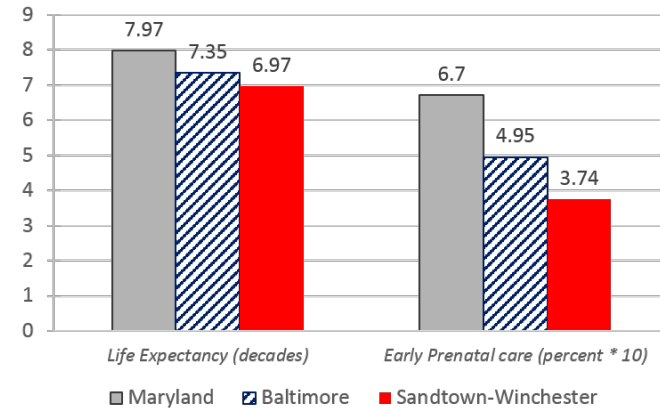
Comparison of Health by Geography



What Was Just Shared with You?



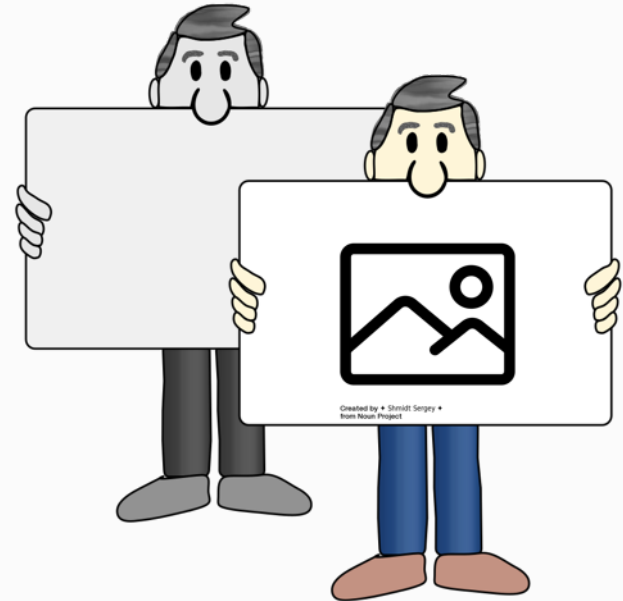
Comparison of Health by Geography



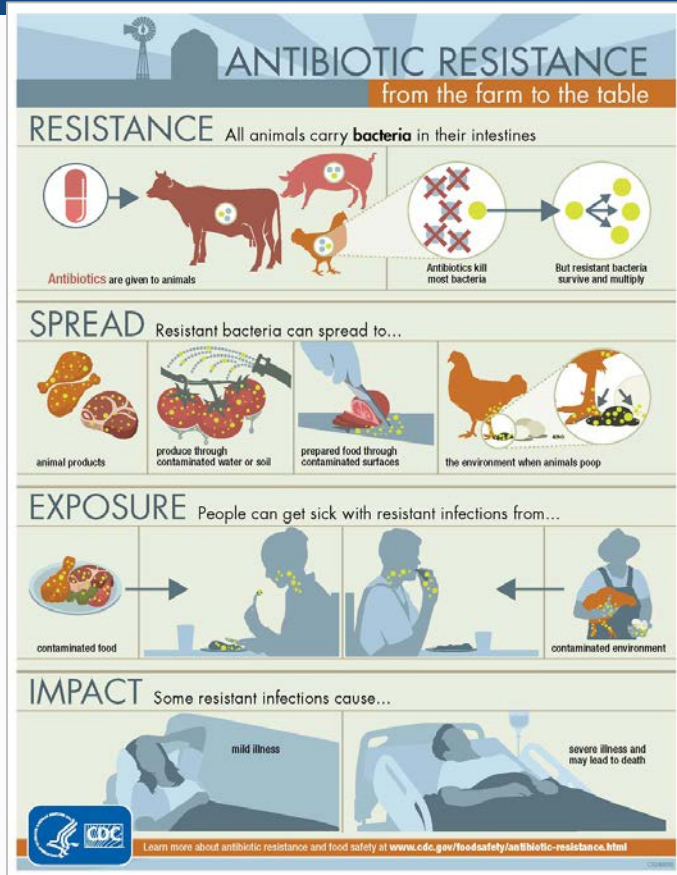
Hancock, Jay. "In Freddie Gray's Baltimore, The Best Medical Care Is Nearby But Elusive." *NPR*, NPR, 15 Feb. 2016, Retrieved 8 Oct 2017 from www.npr.org/sections/health-shots/2016/02/15/466550095/in-freddie-grays-baltimore-the-best-medical-care-is-nearby-but-elusive .

Promoting Learning

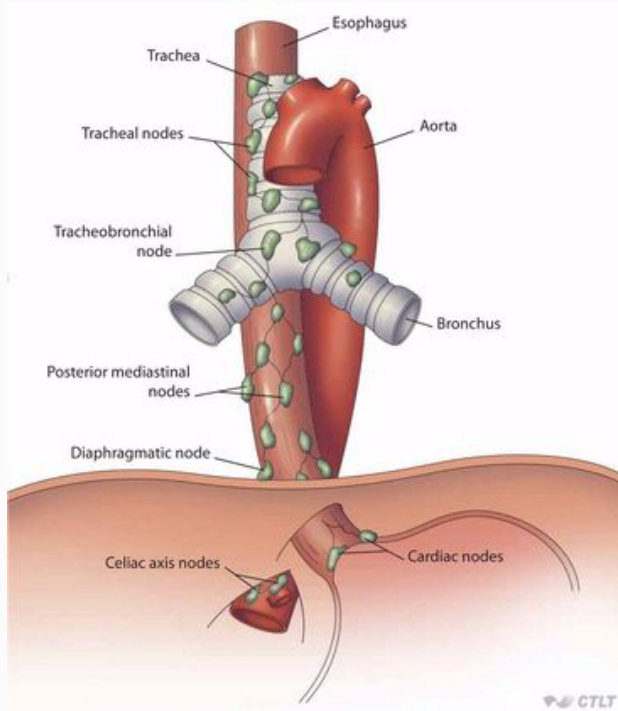
- ▶ Teaching with images enhances curriculum in a variety of ways:
 - ▶ Engagement
 - ▶ Reinforcement
 - ▶ Deeper (Sensory) Connections
 - ▶ Visual Literacy



Promoting Learning through... - 1 (Hidden)



Promoting Learning through... - 2 (Hidden)



Promoting Learning through... - 3 (Hidden)



The Many Roles of Images

▶ Intended

- ▶ Information
- ▶ Critical thinking
- ▶ Engagement
- ▶ Reinforcement
- ▶ Design

▶ Unintended

- ▶ Personal connections and separations
- ▶ Visual literacy
- ▶ Iconic

Purposeful Selection of an Image

- ▶ Does it demonstrate, add to, or reinforce a concept or objective?
 - ▶ Can it stand alone?
 - Consider context of surrounding text
 - Consider chronology in lecture
 - ▶ Is it a stimulus?
 - Consider all changes/reactions
- ▶ Is it an identifier/navigation aid?
 - ▶ Identifiers should be “low effort”
- ▶ Are the characteristics of the image appropriate to its context?

Purposeful Selection of an Image, cont.

- ▶ Is the media sensitive to:
 - ▶ Audience
 - Prior knowledge
 - Cultural responsiveness, etc.
 - ▶ Sustainability
 - Time (will it become dated?)
 - Design/Theme
 - Copyright vs. fair use

Purposeful Selection – Examples



Health by Nirbhay from the Noun Project, [CC BY 3.0](#)
pulsation by Adnen Kadri from the Noun Project, [CC BY 3.0](#)



Bill Branson. *Family Eating Lunch*. July 2007.
<https://visualsonline.cancer.gov/details.cfm?imageid=4503> Public Domain.



By Barricade Breaker (Own work) [Public domain], via Wikimedia Commons

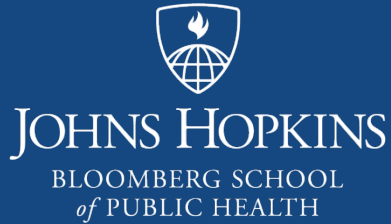


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Design, Legal Concerns, and Image Sources



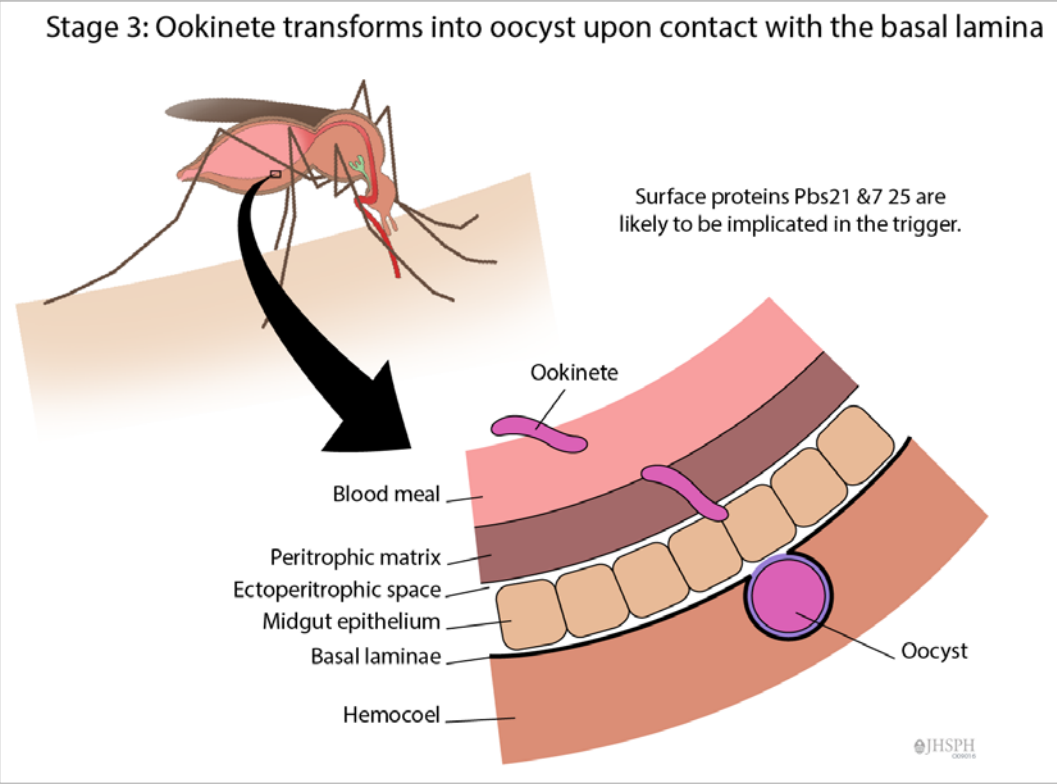
Design: Selection of images

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Good design

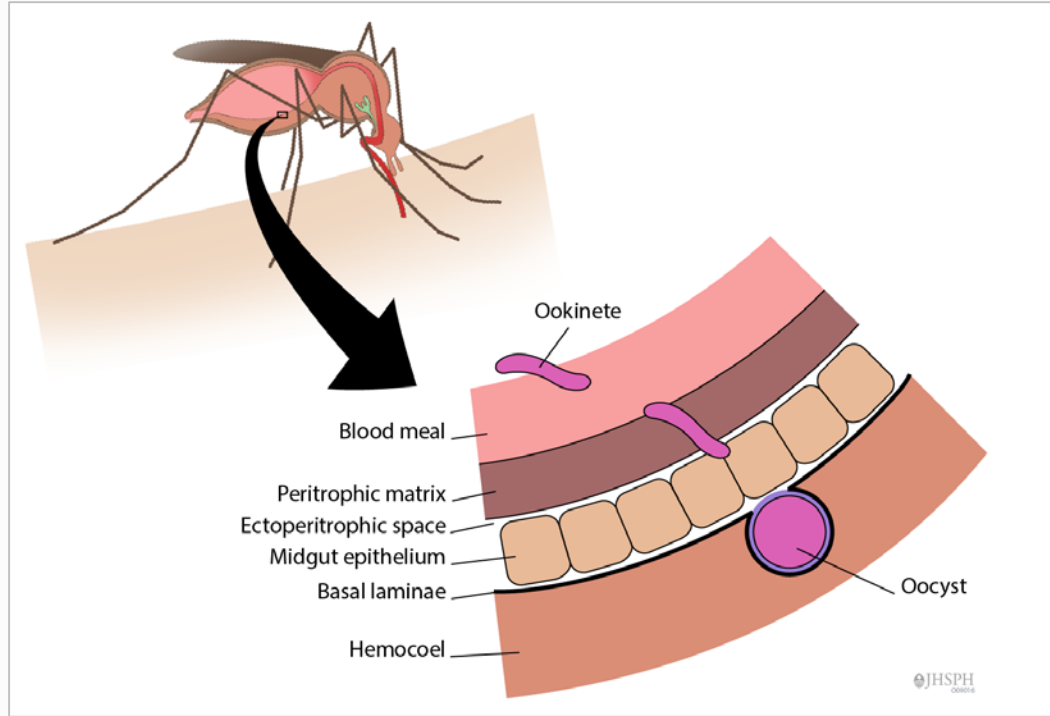
- ▶ Universal design for learning is NOT about disability or making accommodations. It's about GOOD DESIGN.

Text in image



Text in text box

- ▶ Stage 3: Ookinete transforms into oocyst upon contact with the basal lamina
- ▶ Surface proteins Pbs21 & 25 are likely to be implicated in the trigger



Plain fonts

- ▶ Serif fonts are considered best for print.
 - ▶ Georgia, Times New Roman, Garamond
- ▶ Sans Serif are best for online
 - ▶ Verdana is considered the best font for accessibility online
 - ▶ Other options are Arial, Helvetica, Trebuchet

Text as image – do not screenshot DOI



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Perspective

Medicaid and Insuring the Poor — Where Are We Heading?

Sara Rosenbaum, J.D.

N Engl J Med 2016; 375:1405-1407 | [October 13, 2016](#) | DOI: 10.1056/NEJMp1608552

Share: [f](#) [t](#) [+](#) [in](#) [+](#)

[Article](#)[References](#)[Metrics](#)

As the principal source of health insurance for the poor, the dominant payer for long-term services and supports, the most important source of health care financing during public health crises, and the largest source of funding for the health care safety net, Medicaid occupies a central place in U.S. health policy. Medicaid will inevitably continue to evolve as the population ages, population health needs change, poverty persists, and rates of coverage by employer-sponsored insurance continue to decline, especially among workers at smaller, low-wage firms.

Font size and sufficient visual contrast

Investigate

Mauris neque erat, tristique a ornare eget, dapibus vitae lacus. Donec lorem dui, faucibus in tincidunt ut, posuere ut ipsum. Aenean dignissim ut ex et ultrices. Praesent scelerisque mollis justo sed tincidunt. Mauris aliquam sagittis facilisis. Pellentesque pellentesque aliquet ex eu lacinia.

Decide

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Vivamus fermentum ante nec rhoncus luctus. Quisque et sodales lorem, euismod tempus metus. Donec cursus turpis in neque molestie viverra. Praesent rhoncus mauris at felis dictum egestas. Mauris ut diam vitae mauris tempus hendrerit. Aliquam suscipit id diam quis pretium. Integer tincidunt, nisi a varius lobortis, magna purus efficitur urna, at commodo nibh arcu ut leo. Mauris ac tempus metus. In non aliquet ligula. Suspendisse eget nisi ut nisl cursus volutpat. In volutpat auctor lacus, sit amet pellentesque ipsum.

Option 1

Mauris neque erat, tristique a ornare eget, dapibus vitae lacus. Donec lorem dui, faucibus in tincidunt ut, posuere ut ipsum. Aenean dignissim ut ex et ultrices. Praesent scelerisque mollis justo sed tincidunt. Mauris aliquam sagittis facilisis. Pellentesque pellentesque aliquet ex eu lacinia.

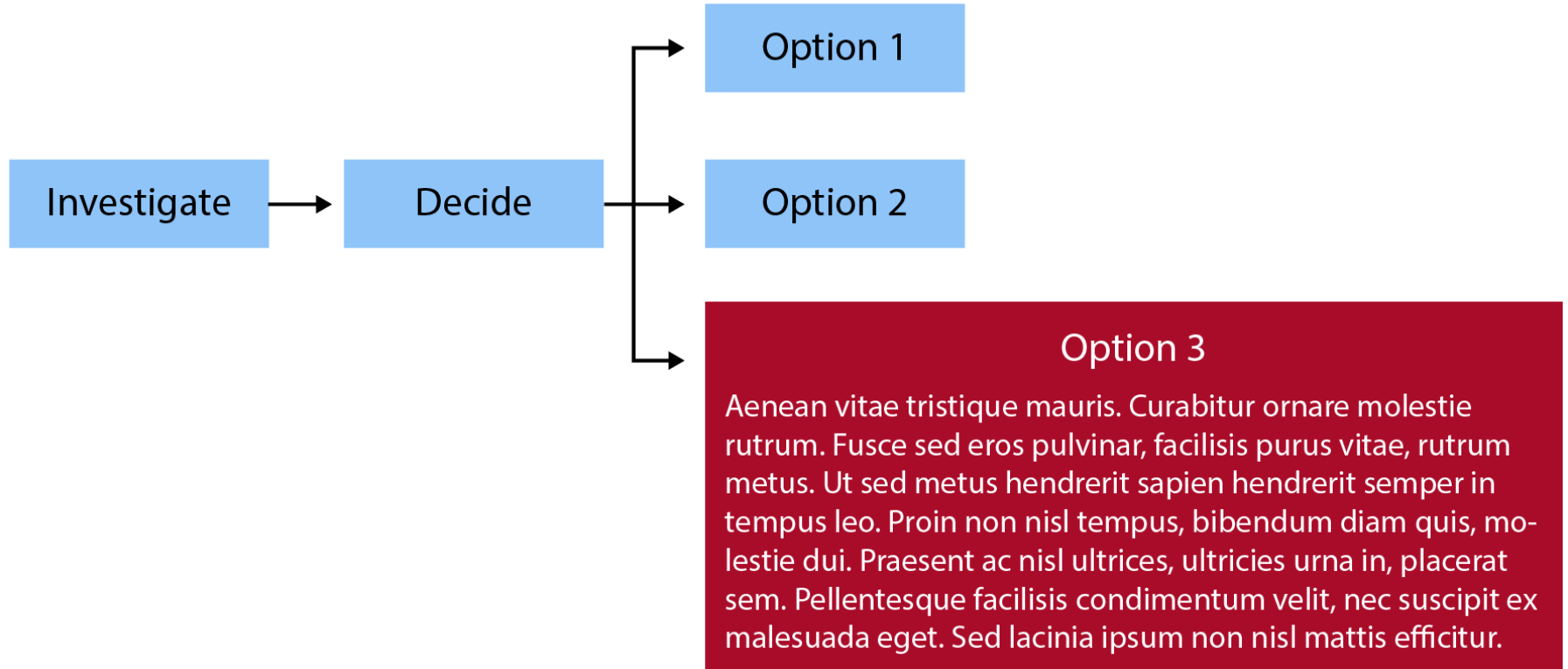
Option 2

Quisque tempor quam vel magna venenatis, quis viverra ex varius. Etiam ut convallis mi. Nunc facilisis urna ac purus luctus sagittis. Vestibulum tristique elit consequat neque iaculis semper. Nam hendrerit sagittis magna sit amet venenatis. Vivamus fermentum ante nec rhoncus luctus. Quisque et sodales lorem, euismod tempus metus. Donec cursus turpis in neque molestie viverra. Praesent rhoncus mauris at felis dictum egestas. Mauris ut diam vitae mauris tempus hendrerit. Aliquam suscipit id diam quis pretium. Integer tincidunt, nisi a varius lobortis, magna purus efficitur urna, at commodo nibh arcu ut leo. Mauris ac tempus metus. In non aliquet ligula. Suspendisse eget nisi ut nisl cursus volutpat.

Option 3

Aenean vitae tristique mauris. Curabitur ornare molestie rutrum. Fusce sed eros pulvinar, facilisis purus vitae, rutrum metus. Ut sed metus hendrerit sapien hendrerit semper in tempus leo. Proin non nisl tempus, bibendum diam quis, molestie dui. Praesent ac nisl ultrices, ultrices urna in, placerat sem. Pellentesque facilisis condimentum velit, nec suscipit ex malesuada eget. Sed lacinia ipsum non nisl mattis efficitur.

Possible solution

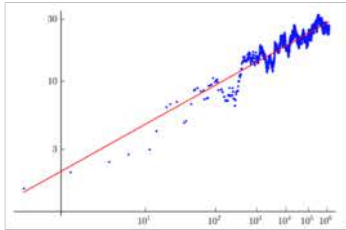


Contrast Checker

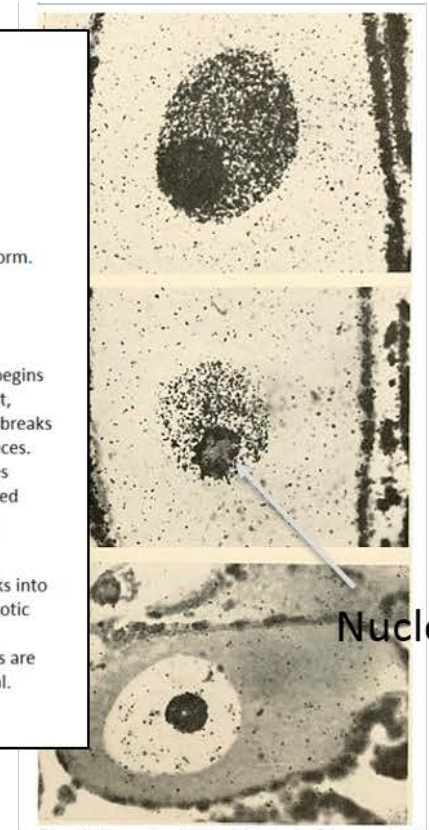
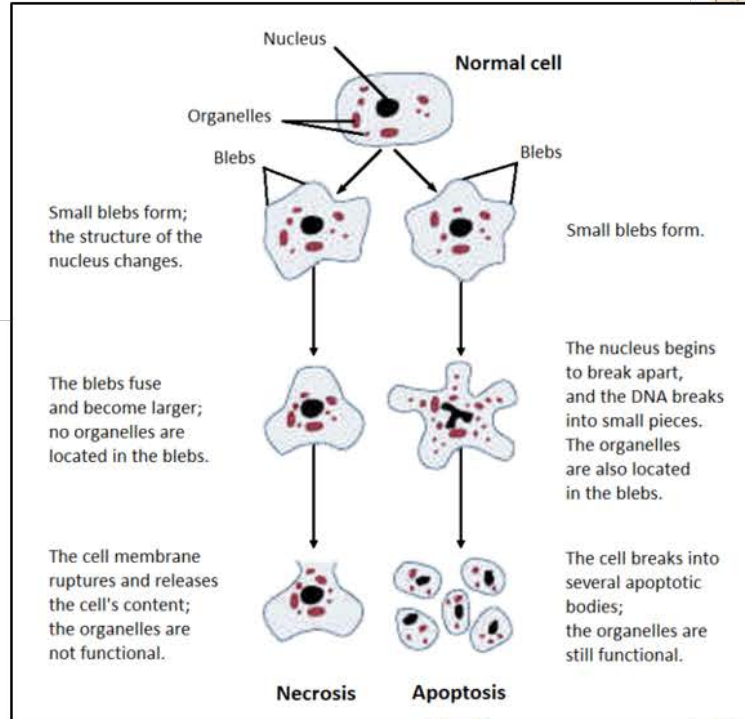
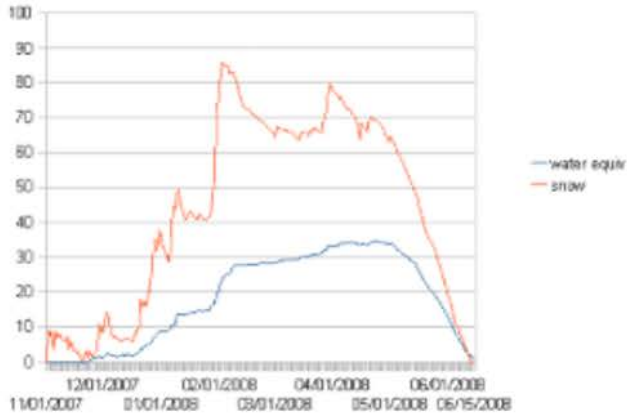
▶ <http://contrastchecker.com>

The screenshot shows the 'CONTRAST CHECKER' interface. At the top, it says 'COURTESY OF ACART COMMUNICATIONS, INC.' Below that is the 'COLOR SELECTION' section. On the left, there are two color selection boxes: 'FOREGROUND' with the hex code '000000' and 'BACKGROUND' with the hex code '8FC4F9'. To the right of these boxes is a preview area with two samples: 'Sample 12pt' and 'Sample 18pt', each with a corresponding text block. At the top right of the preview area are buttons for 'SEE GRAYSCALE', 'SHARE SAMPLES', and 'RESET'. At the bottom right of the preview area is a button for '+ ADD TO HISTORY'. At the bottom of the interface, there are six green circular buttons with white text and checkmarks: 'AA', 'AAA', 'AA_{18pt}', 'AAA_{18pt}', 'PASS', and '588 COLOR DIFF'. The 'COLORS' and 'COLOR DIFF' labels are positioned above the 'PASS' and '588' buttons respectively.

Too busy

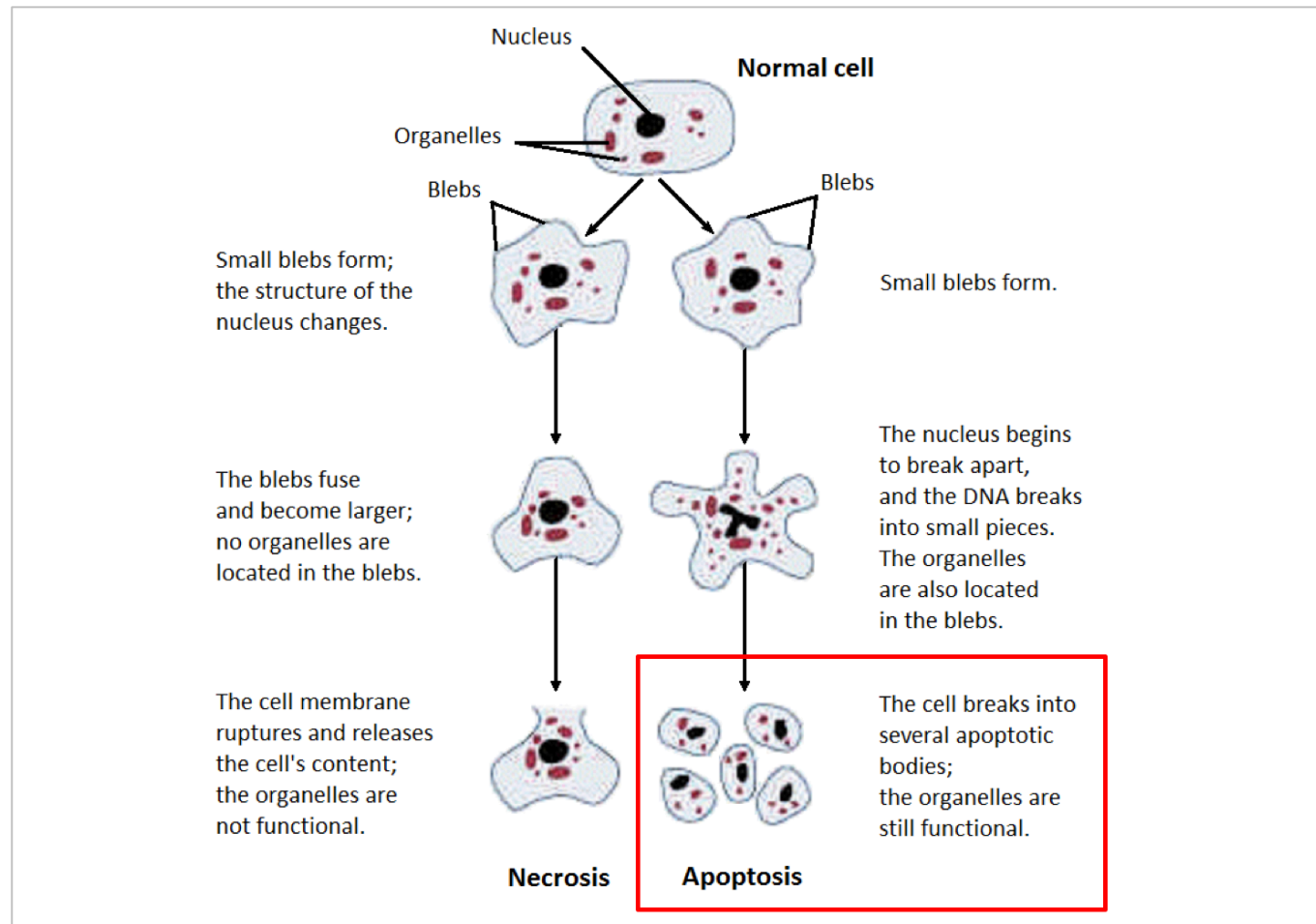


SNOTEL Data for Marion Forks, Oregon
2007-2008 water year (inches)

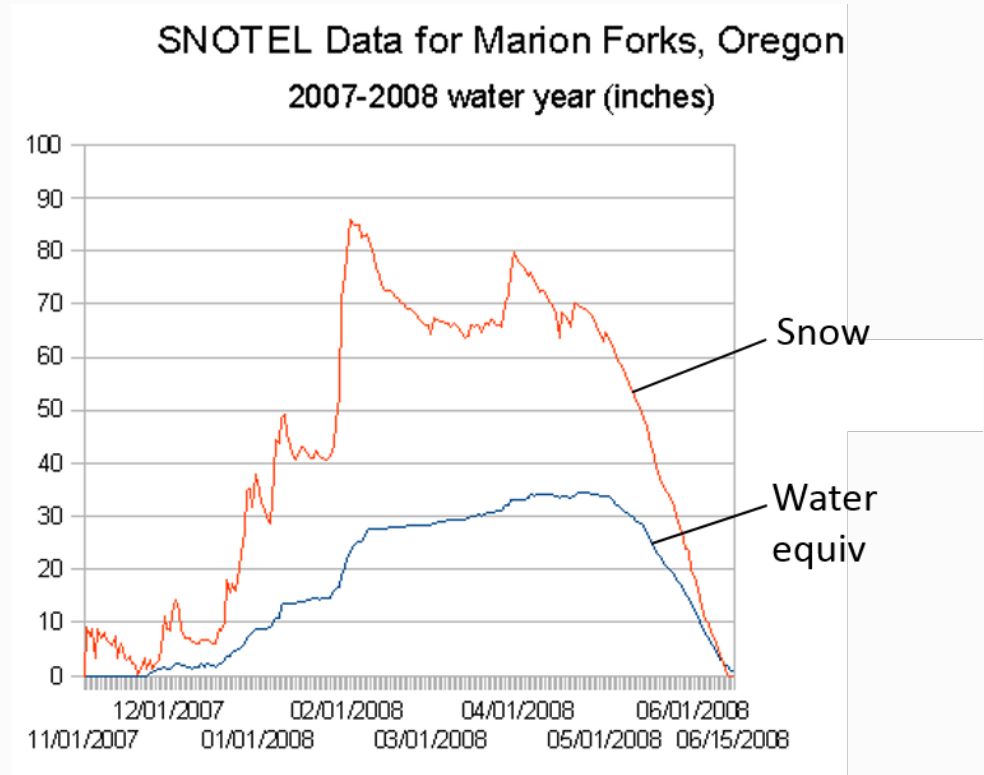
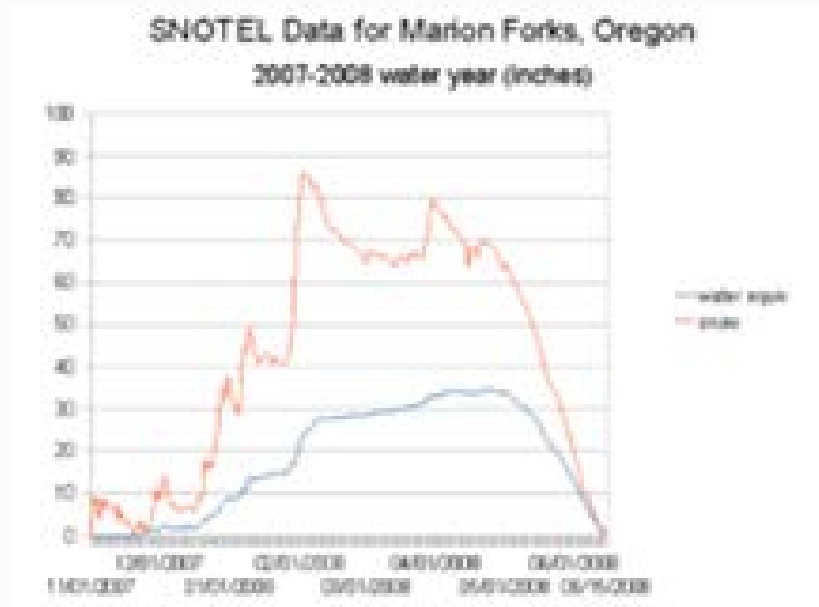


Nucleus

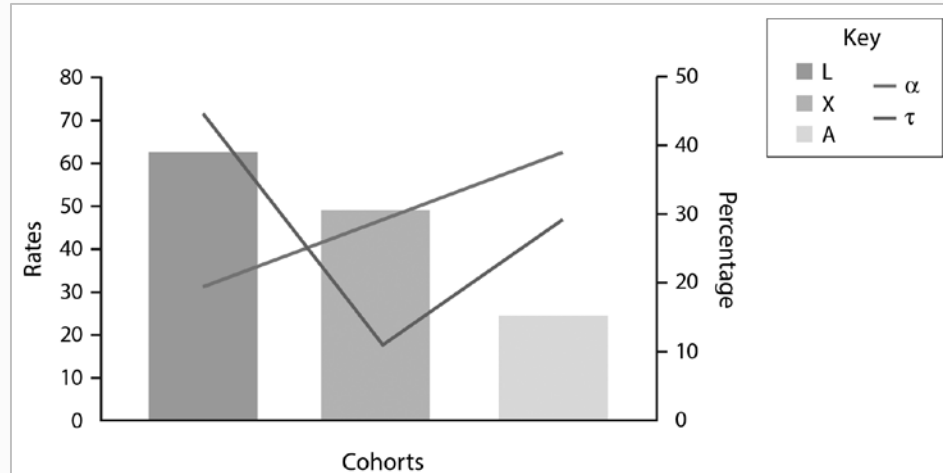
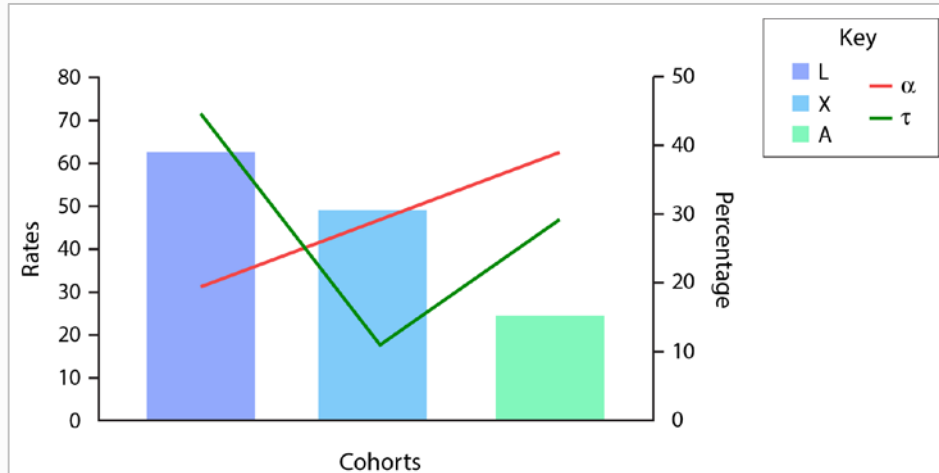
Split images onto different slides



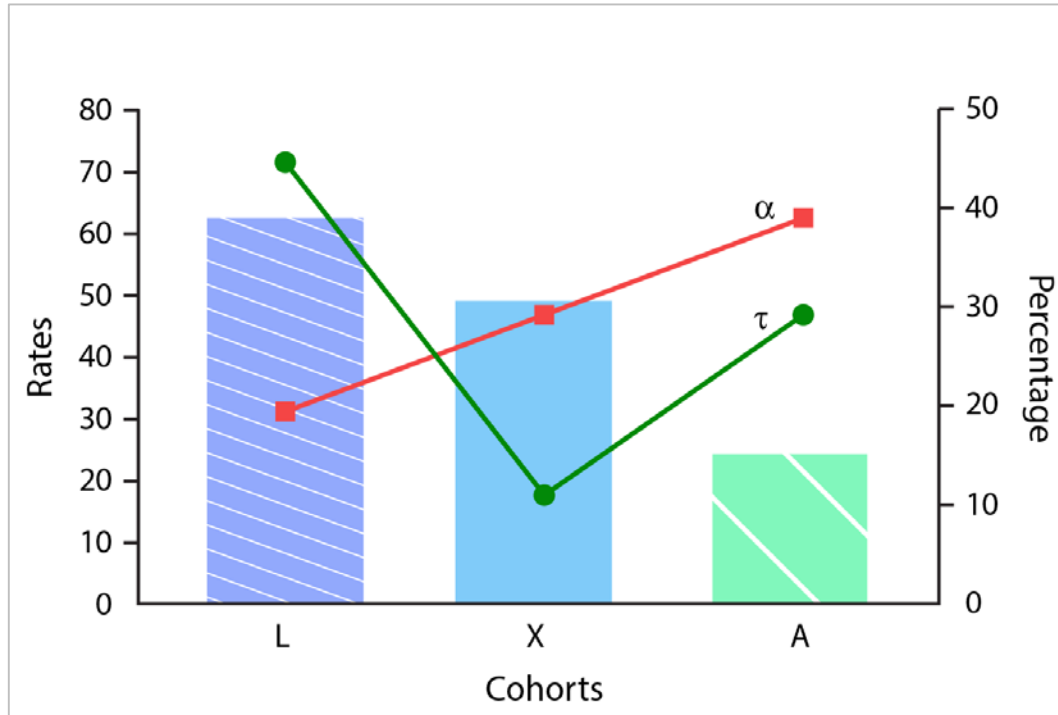
Fuzzy images and small screenshots



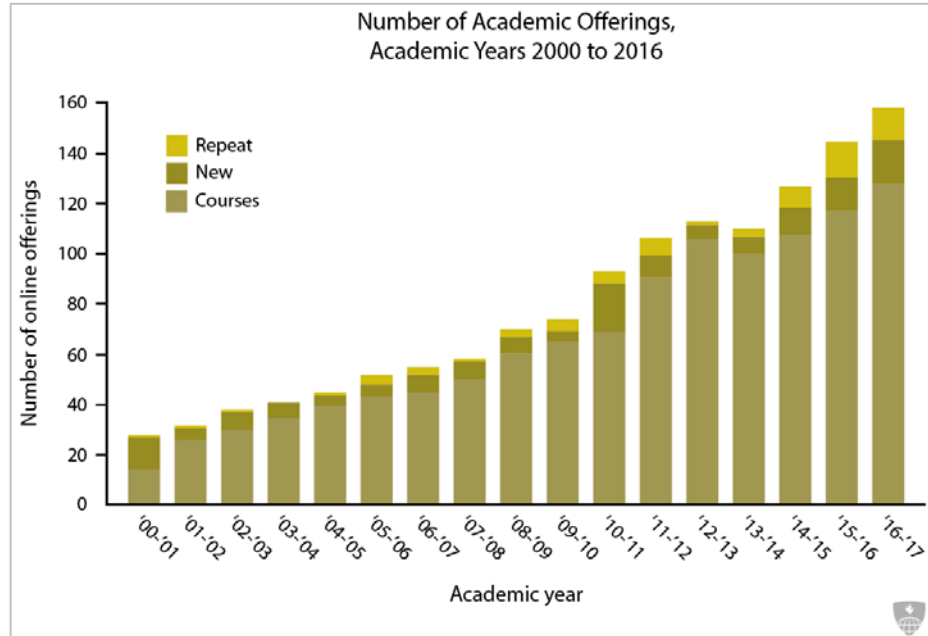
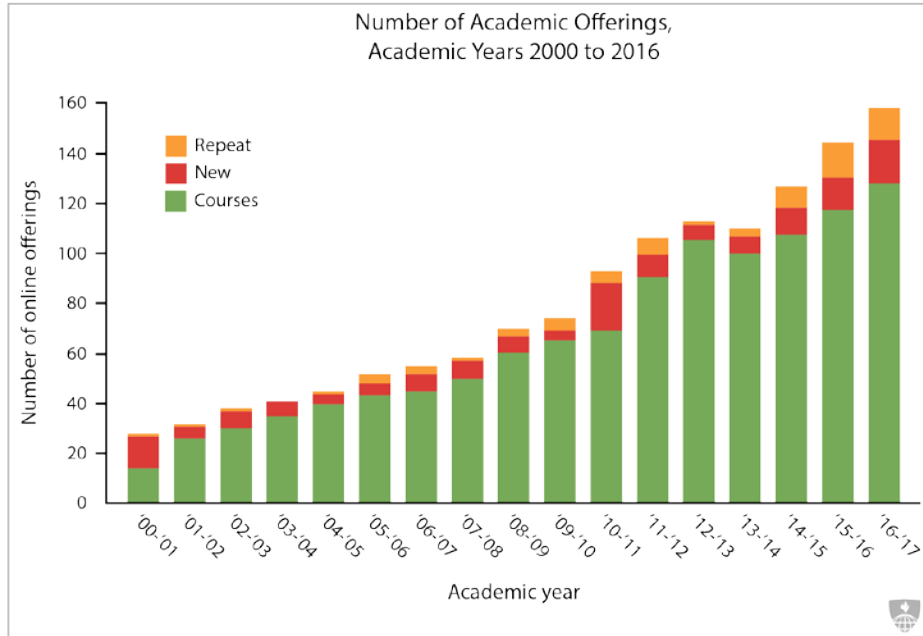
Do not use color alone



Use hashed lines, shapes, and labels

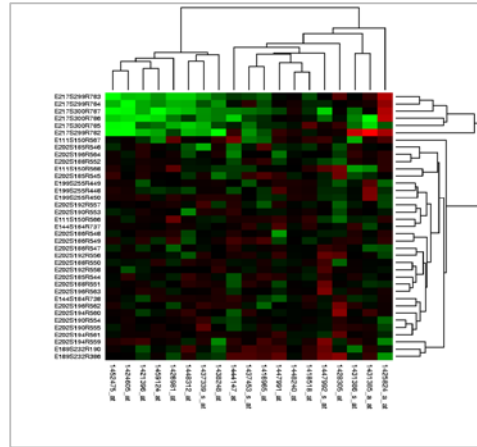


Color blindness



Online color blindness simulators

<http://www.color-blindness.com/coblis-color-blindness-simulator/>



Drag and drop or paste your file in the area below or: Screen Shot...35 AM.png

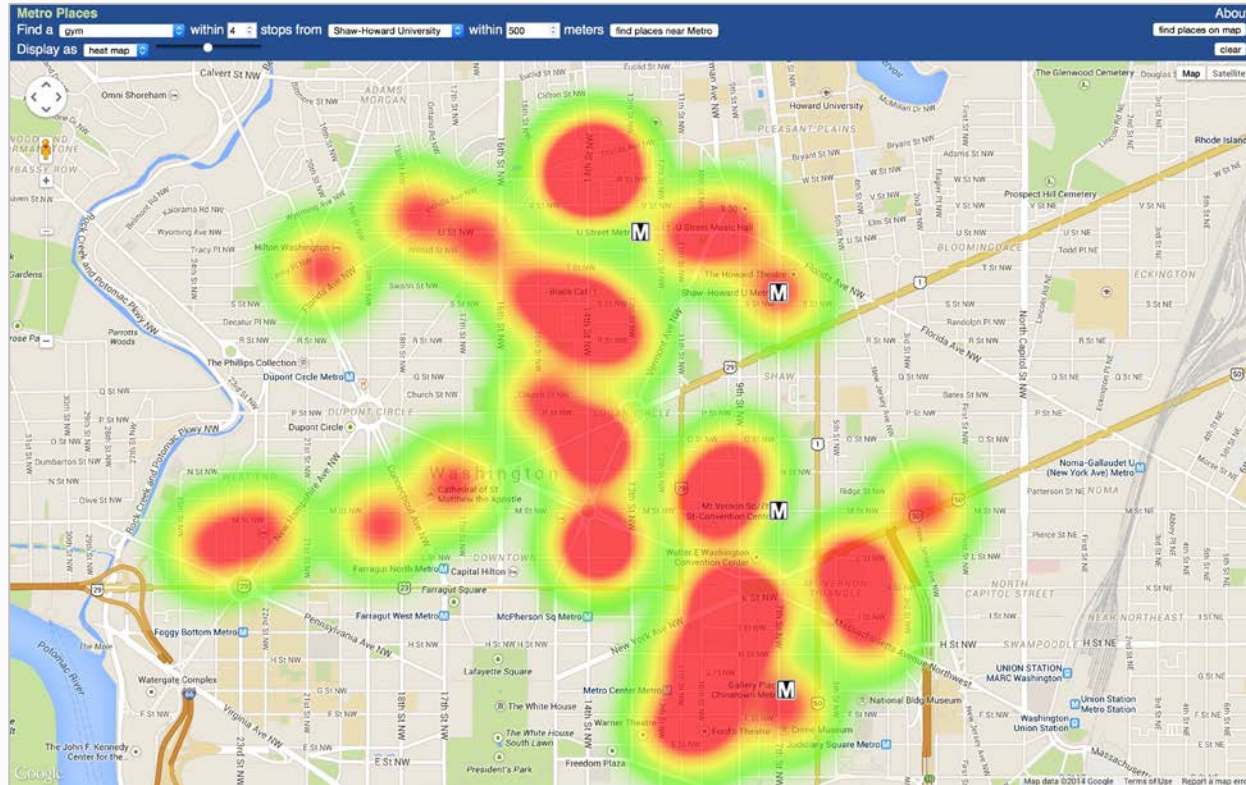
Trichromatic view: Normal
Anomalous Trichromacy: Red-Weak/Protanomaly Green-Weak/Deuteranomaly Blue-Weak/Tritanomaly
Dichromatic view: Red-Blind/Protanopia Green-Blind/Deuteranopia Blue-Blind/Tritanopia
Monochromatic view: Monochromacy/Achromatopsia Blue Cone Monochromacy

Use lens to compare with normal view: No Lens Normal Lens Inverse Lens

[Reset View](#) [Open simulated image in new window](#)

A heatmap visualization showing the results of a color blindness simulator, similar to the one on the left. The x-axis represents different color patches, and the y-axis represents different types of color blindness. The color scale ranges from yellow (normal) to black (abnormal). The heatmap shows a clear pattern of color blindness, with black patches indicating areas where the color is perceived as black instead of yellow.

Heat maps





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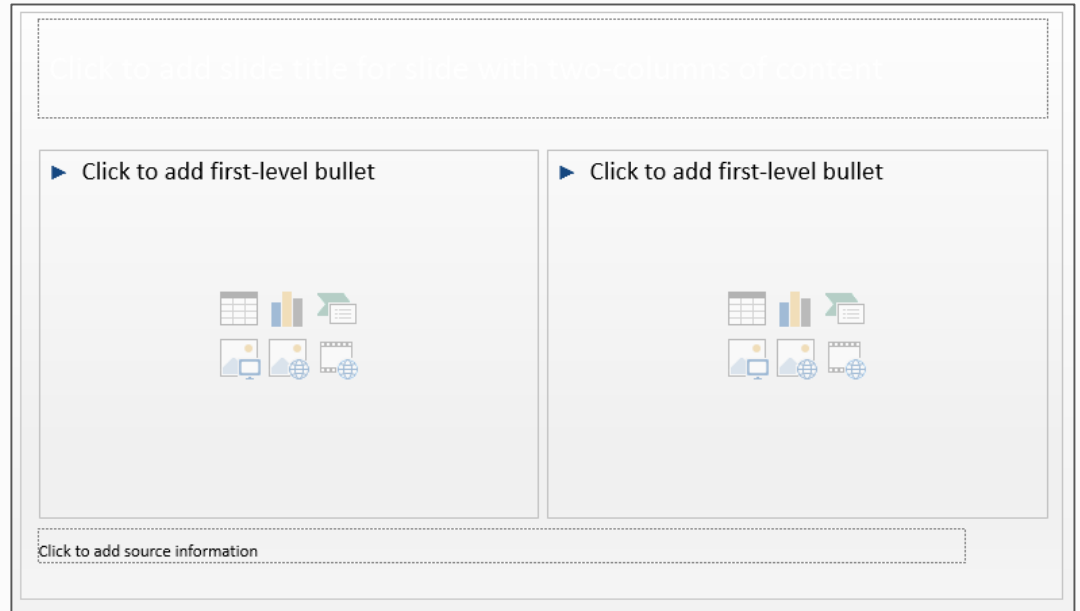
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Best Practices (the “How”)

Best Practices – Structure

- ▶ Microsoft PowerPoint Structure
 - ▶ Use templates and only rely on a Slide Master layout's **placeholders**
 - ▶ Accessible PowerPoints use placeholders to insert only text, tables, charts, and images as objects



Best Practices – Sources

- ▶ JHSPH & JHU PowerPoint templates have Source text boxes as placeholders
- ▶ Include citation information for images as well as other content in lecture
 - ▶ DOI when available
 - ▶ Date retrieved for URLs

On Digital Object Identifiers

- ▶ DOIs are absolute and unique
- ▶ Usually found near copyright statement, on first page of journal article, “source” page citation statement
- ▶ DOIs can be used to access source data
 - ▶ References/Bibliography
 - ▶ Accessibility purposes
 - Data sets
 - Long descriptors

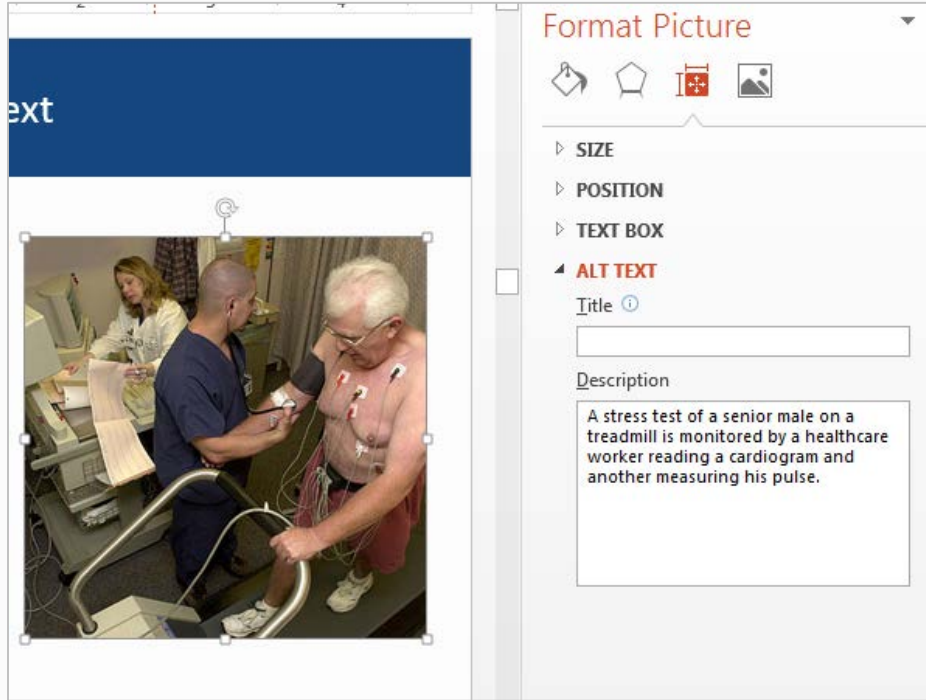
Building and Selecting Graphics that Better Serve and Communicate with a Broader Range of Learners

Communicating with Graphics: Equitable Use, Perceptible Information, Low Effort

<i>Sample Characteristic</i>	Is it Equitable?	Is it Perceptible?	Does it Reduce Physical Effort?
Not using color alone to convey meaning	Yes	Yes	Yes
Avoiding text as a part of the image	Yes	Yes	Yes
Color Contrast Ratios	Yes	Yes	Yes
Borders on maps & tables	Yes	Yes	Yes
Alternate text	Yes	Yes	Yes

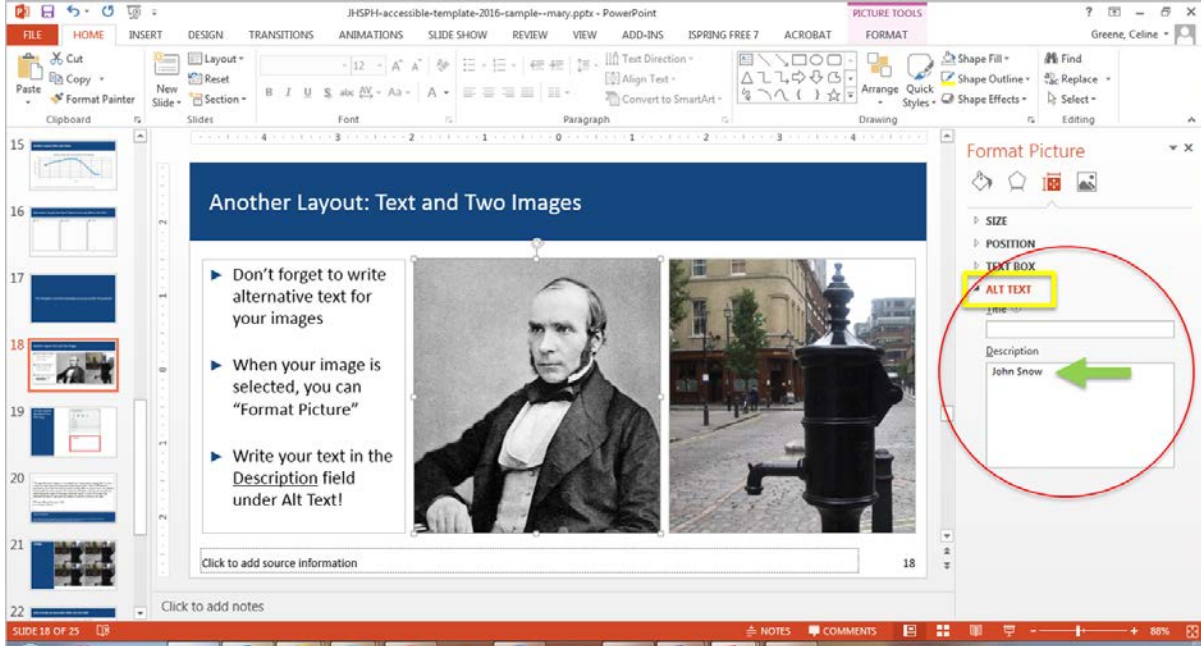
Best Practices – Format Picture: Alternative Text

- ▶ Simple, succinct text to describe any non-decorative image or summarize any complex element (table, chart, embedded multimedia, etc.)
- ▶ Alt text should convey the meaning of the object
 - ▶ Images should avoid including text if possible; if not, mention it in alt text
 - ▶ Do not state the obvious
 - ▶ Use appropriate language

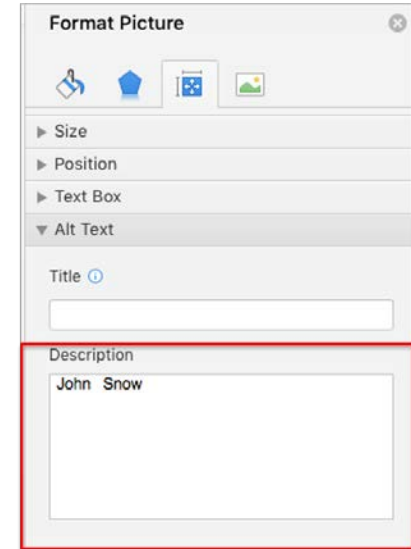


The screenshot displays the 'Format Picture' dialog box. On the left, a preview window shows a photograph of a healthcare worker in blue scrubs monitoring a senior male on a treadmill. The male is wearing a pink shirt and has several electrodes attached to his chest. Another person is visible in the background, reading a cardiogram. The dialog box on the right has a title bar 'Format Picture' and a toolbar with icons for crop, pan, zoom, and image. Below the toolbar, there are sections for 'SIZE', 'POSITION', 'TEXT BOX', and 'ALT TEXT'. The 'ALT TEXT' section is expanded, showing a 'Title' field with a help icon and a 'Description' field containing the text: 'A stress test of a senior male on a treadmill is monitored by a healthcare worker reading a cardiogram and another measuring his pulse.'

Where to Enter Alternative Text for Images



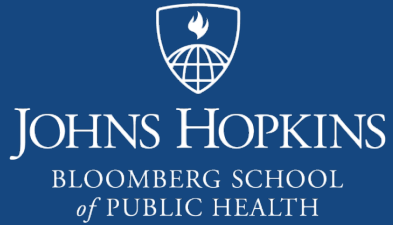
Format Picture: PowerPoint 2013 (Windows)



Format Picture (Mac)

Data Elements

- ▶ Avoid using **only images** of a chart, graph, or table, especially if it needs a long descriptor (Perceivable, Understandable)
 - ▶ Original data sets (usually in a spreadsheet display) attached to a visual representation can be accessed by AT
- ▶ Include alt text for the object summarizing its content, especially if the object is complex



Legal concerns

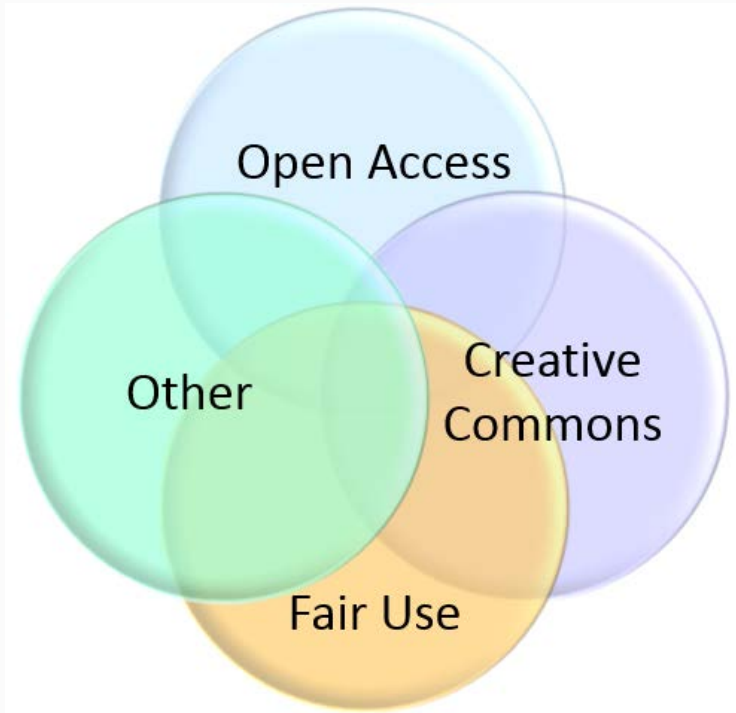
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Copyright

- ▶ The owner of a copyright has exclusive permission to:
 - ▶ make copies of a protected work (reproduction rights)
 - ▶ sell or otherwise distribute copies to the public (distribution rights)
 - ▶ create derivative works (adaptions)
 - ▶ perform a protected work or display a work in public (performance and display rights)
- ▶ Anyone other than the copyright owner must either gain permission to use the protected work, including a clearly stated permission or license, or use it under fair use.

Using Copyright-protected Material without Seeking Permission

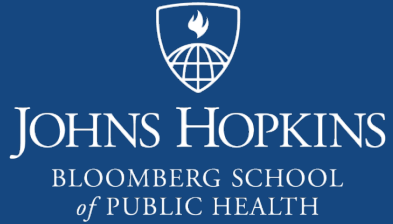
Permissions Overlap



- ▶ These are the exceptions to asking the owner of a copyright for permission to reproduce, distribute, adapt, perform or display their protected work.
- ▶ What is permissible and the conditions for these privileges varies.

Record Keeping

- ▶ Collect:
 - ▶ Author/Artist/Creator/Publisher
 - ▶ Owner of copyright (if different)
 - ▶ Citation information (depends on content)
 - Title
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