

Creating and Critiquing Data Visualisations - Rhys Hughes

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CRITIQUING AND CREATING DATA VISUALISATIONS



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Brief

For this assignment two tasks have been issued. The first task is to discuss the effectiveness of an infographic named “Physical activity for adults UK” by discussing topics such as its colour choice and its graphics. The second task for this assignment is to create an A3 poster answering two questions using data supplied.

Physical activity for Adults UK infographic

Poster aim

The poster was created as part of the UK's ⁷chief medical officers' physical activity guidelines report of 2019 [1]. The aim is to show what physical activity is required for older adults per week to be healthy. At the beginning of the poster, it shows the benefits that exercise has for older adults. In the middle of the poster, it shows the different beneficial activities for older adults. Towards the bottom of the poster, it shows what different activities do to the body for older adults.



Colour and text readability

Font choice is important when making a poster because the incorrect font choice can make it unreadable. There isn't a set recommendation [2] of whether serif or sans serif fonts are better because there are arguments for both sides. The important consideration is the typeface choice. For example, some typefaces have confusing letters such as between a higher case "l" and a lowercase "l". This is a problem for people with dyslexia and difficulty seeing. Also, different typefaces can look different sizes at the same point size because the way point sizes are calculated.

The font used by the poster appears to be "News Gothic" [3] . It is a sans serif font and is bold. It is mostly good for readability, but it does suffer from the confusion between an upper case l and a lower-case l. This problem can be seen in the lowercase "l" in "build" in the middle and the upper case "l" in "Improve" at the bottom. There are several different fonts that can be used that will reduce this problem such as Verdana which adds lines to the "l" to make it distinguishable from an l.

An important consideration is whether colour-blind people can read and see the text and images on the infographic. To check if an infographic is colour-blind friendly are online tests that can be done to show how colour-blind people see the image. [4] When going through the various test the text was still mostly readable with a few exceptions for extreme colour-blindness. The reason the poster is still readable is because most of the text has good contrast with it being white on a dark colour background. But this is not perfect, to increase the readability of the infographic a small opposite colour outline should be used to ensure that the text is more readable for both colour blind people and non-colour-blind people. Another way is to increase the size of the smaller texts to make them easier to read for people with colour-blindness.

Monochromacy

As you can see the poster is still readable because of the large white text is still readable on the grey background. The smaller text such as the ones surrounding the images are unreadable at a distance because the contrast is too low.



Protanopia

In the middle of the infographic on the left and right some of the smaller white text is difficult for someone with protanopia to be able to read the text.



Tritanopia

There are no readability problems for viewers with protanopia. As the usual problematic text in the middle still has good readability against the blue background.



Deuteranopia

The text in the middle of the screen is a bit difficult to read for people with Deuteranopia.



Graphs

There is one graph visible in the infographic which is in the top right. It shows the reduction in chance with 5 different diseases. The box around the diseases reduces with the percentage reduction. This is a misuse of a bar chart as bar charts are used when you wish to compare the data points [5]. Comparison is useless in this case as all the reductions are equally useful to the viewer so comparing them doesn't help the viewer.

Graphics

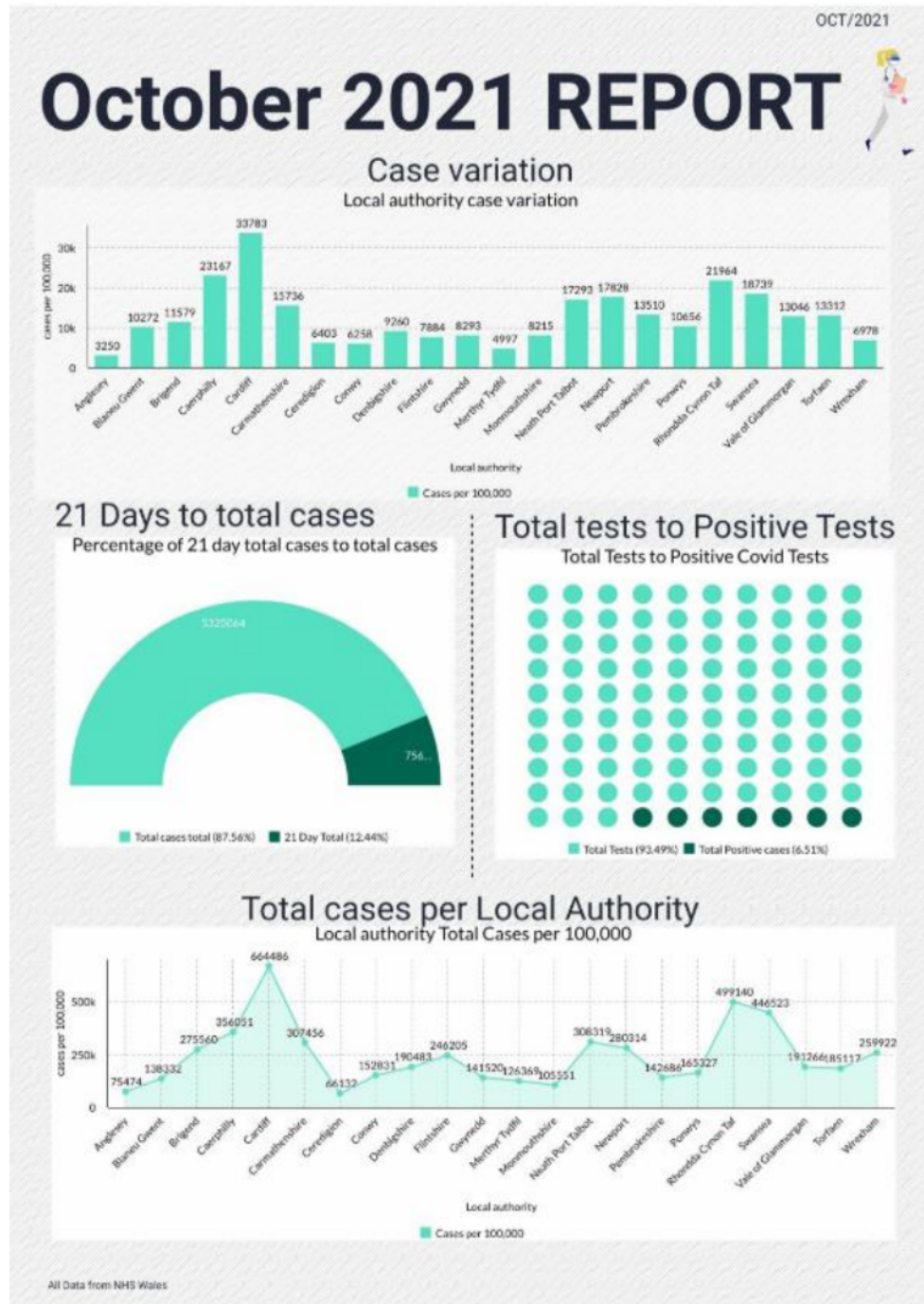
The poster uses pictograms which are like the ones seen in the Olympics to get the information across. The pictograms were used to show the different activities that older adults can do to increase their health. Using pictograms allows the viewer to take in information briefly without needing to read the extra information written. The use of pictograms also has another benefit which is allowing people who cannot read English to be able to understand the purpose of the infographic easily. [6]

A possible improvement is incorporating the things that the stickmen are interacting with the pictograms by making them the same colour such as the bike, tennis ball or stairs.

Another place where pictographs are used are at the top of the infographic. These images are used to support the text that is next to them such as the weighing scale next to the text that talks about weight. These can be a bit small to read at a distance because they lose their detail such as the image of a brain or the weighing scale.

Cognition

The cognitive load is quite low on this infographic because it does not have much text and transfers its information via images. For example, most of the text have a simple image to go with it which show the visual version of that action such as the activities have pictograms describing them. This reduces the cognitive load because the viewer does not have to read much to understand the purpose of the infographic. [7]



Colour

When creating this infographic choosing colours that were readable by colour-blind was important. To do this a website [8] was used to choose colour-blind friendly colours. For the graphs the two colours that were used were #006550 and #57dfc3. These are colour-blind friendly, and they have enough contrast against the white background to be readable. Also, to ensure readability of axis and headings is using black on the white background.

Graphs

There 4 Graphs used in the infographic. Each of the graphs are different in design because they have different requirements and to make them more unique from each other to show that they are answering different questions. All the data used is per 100,000. This is to make the comparison fairer because different local authorities have different population totals which could make one local authority look better or worse just because the population is different. The top one is a bar graph comparing case variation between the local authorities. Each of the local authorities have their numbers above their bar to show that the bar chart hasn't been twisted. The middle left graph compares total cases against the 21 days total cases. The middle right compares tests against positive cases. It is a 10 by 10 grid of dots which can be seen as 100 people and the likely hood of someone being positive in a group of 100. The bottom one shows total cases per local authority.

Graphics

There is limited use of graphics in this infographic. This is because the focus was on showing information. The main graphic used was in the top right corner. The graphic is of a nurse which is relevant to the theme of the infographic.

Text

There is limited text use in the infographic. The text is used for Titles and for the axis. The colour for all text is black because the background is light which gives it good contrast allowing it to being read. The text size is suitable to be readable. The font chosen is Roboto which is a sans serif font.

Bibliography

data used for the infographic

7 Days		
Local Authority	Cases	100,000 incidences
Anglesey	260	3250
Blaneu Gwent	808	10272
Bridgend	892	11579
Caerphilly	1768	23167
Cardiff	2765	33783
Carmathenshire	1176	15736
Ceredigion	538	6403
Conwy	486	6258
Denbigshire	574	9260
Flintshire	618	7884
Gwynedd	591	8293
Merthyr Tydfil	432	4997
Monmouthshire	1287	8215
Neath Port Talbot	1069	17293
Newport	1375	17828
Pembrokeshire	1069	13510
Powys	770	10656
Rhondda Cynon Taf	1732	21964
Swansea	1509	18739
Vale of Glamorgan	1168	13046
Torfaen	967	13312
Wrexham	514	6978

21 days		
Local Authority	Cases	100,000 incidences
Anglesey	978	12266
Blaenau Gwent	1672	21171
Bridgend	2148	27801
Caerphilly	4263	56333
Cardiff	8135	110724
Carmarthenshire	3472	45868
Ceredigion	990	12160
Conwy	1435	18332
Denbigshire	1652	26576
Flintshire	1858	24278
Gwynedd	1650	23076
Merthyr Tydfil	994	11529
Monmouthshire	1731	20032
Neath Port Talbort	3154	42123
Newport	3055	39629
Pembrokeshire	2760	35629
Powys	2174	30587
Rhondda Cynon Taf	4342	55029
Swansea	4251	53301
Vale of Glamorgan	3154	34891
Torfaen	2471	33961
Wrexham	1589	21484

Total Cases		
Local Authority	Cases	100,000 incidences
Anglesey	5901	75474
Blaenau Gwent	10808	138332
Bridgend	21361	275560
Caerphilly	26878	356051
Cardiff	50501	664486
Carmarthenshire	23193	307456
Ceredigion	5355	66132
Conwy	11955	152831
Denbighshire	12247	190483
Flintshire	19181	246205
Gwynedd	10446	141520
Merthyr Tydfil	10906	126369
Monmouthshire	9051	105551
Neath Port Talbot	23281	308319
Newport	21725	280314
Pembrokeshire	11154	142686
Powys	11687	165327
Rhondda Cynon Taf	38571	499140
Swansea	35818	446523
Vale of Glamorgan	17205	191266
Torfaen	13452	185117
Wrexham	19518	259922

21-day total	756780
Total cases total	5325064
%	14.21166018

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