Chapter 6 Overview Cairo video (0-31 min)

Anh D Mai Ho

Fundamentals Variations of Graphs

- Quantitative values can be represented in graphs using:
  - Points
  - Lines
  - Bars
  - Boxes
  - Shapes with varying 2-D arrays
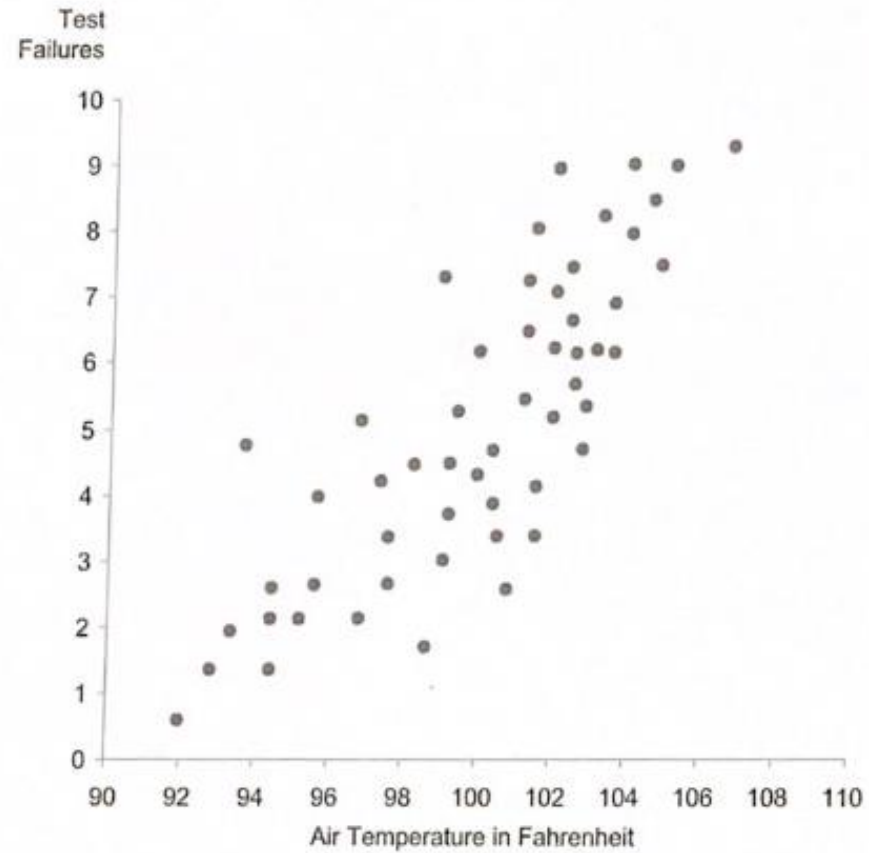 - Shares with varying color intensity

Point

FIGURE 6.1 This graph uses points, in this case dots, to encode quantitative values.
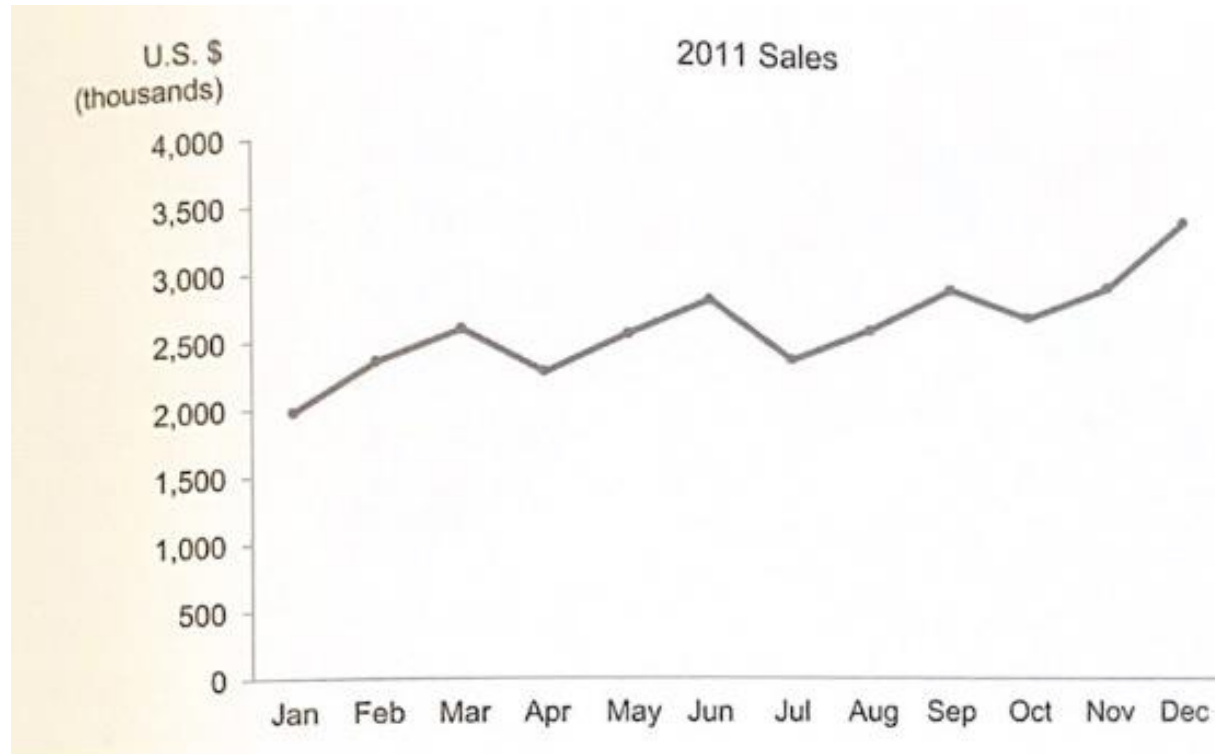
Line

FIGURE 6.3 This graph employs two graphical objects, points and a line, to represent the same set of quantitative values.
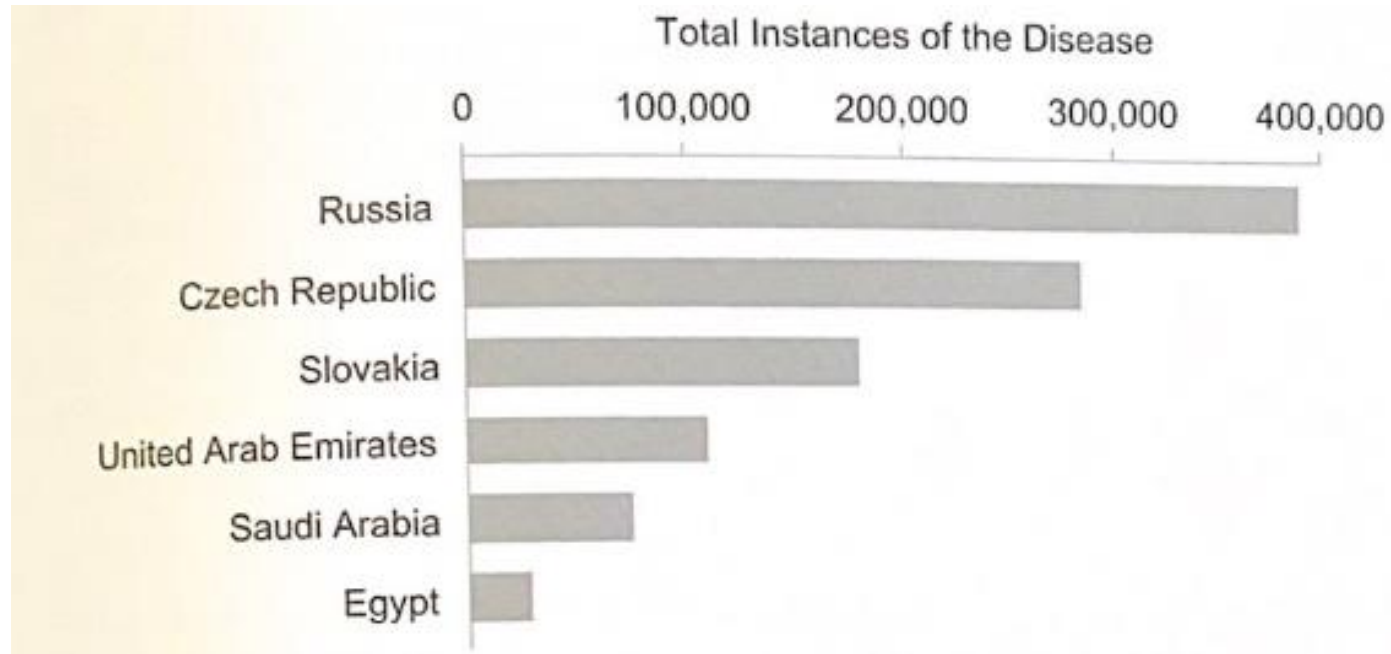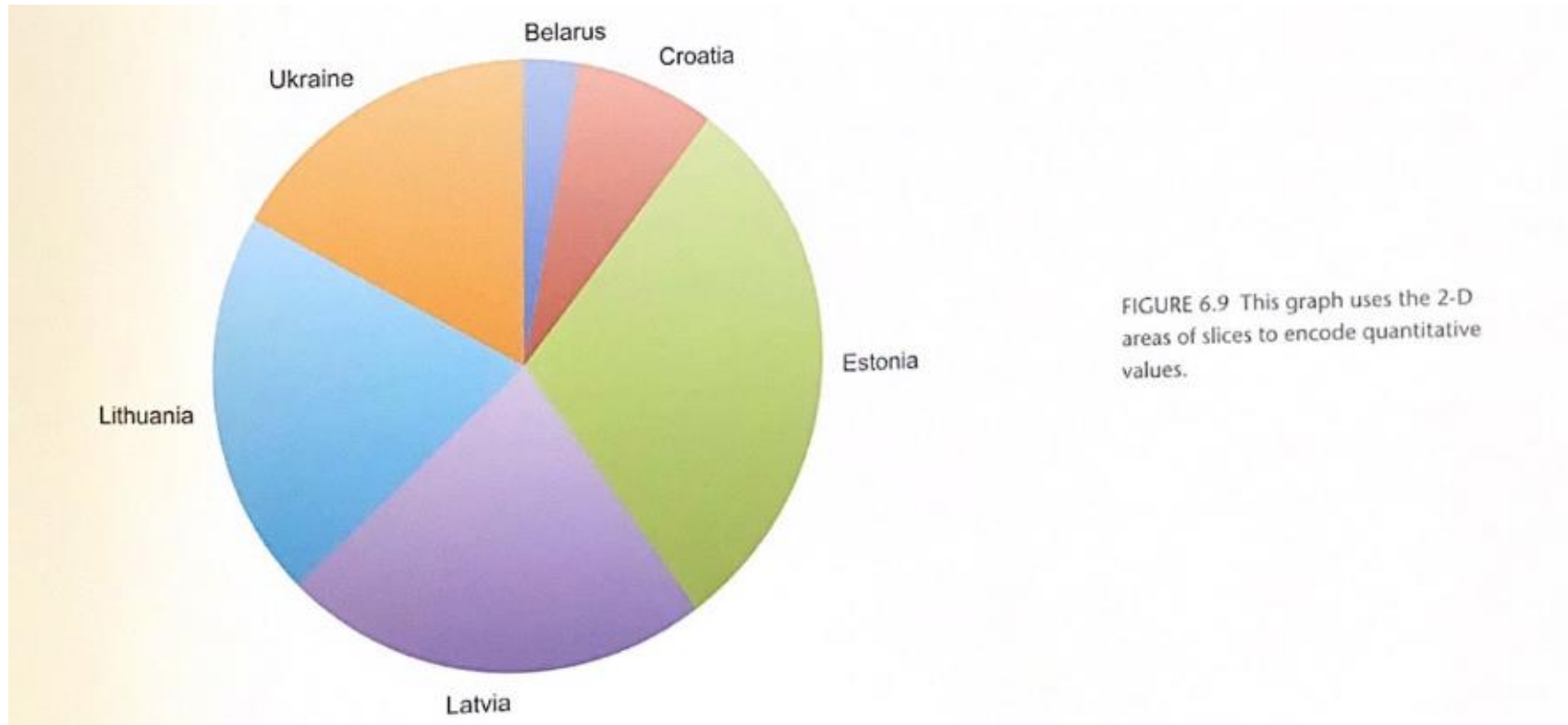
Bar

Total Instances of the Disease

FIGURE 6.6 This graph uses bars to encode quantitative values.

2-D Areas with 2-D array

FIGURE 6.9 This graph uses the 2-D areas of slices to encode quantitative values.

2-D Areas with color intensity

U.S. Medical Costs in 2008
Each bubble represents a disease and an age group.
The size of each bubble represents the number of patients.
Bubble color intensity represents patient ages from young to old.

Per-Patient Cost
in U.S. $

FIGURE 6.14 This bubble plot encodes separate variables using the size and color intensities of the bubbles.

Patient % of Cost
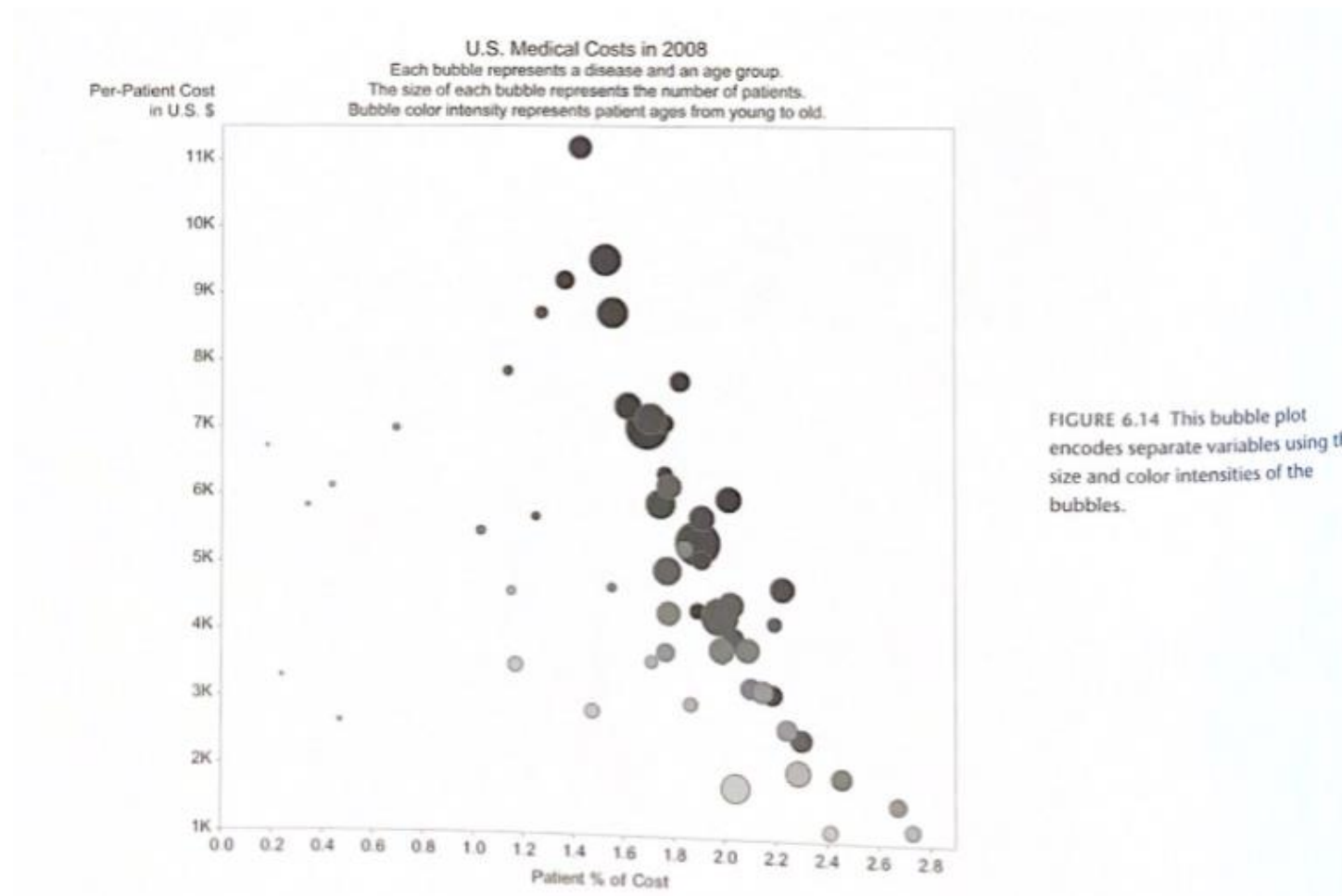
Relationship in graph

- Time series
- Ranking
- Part-to-whole
- Deviation
- Distribution
- Correlation
- Geospatial
- Nominal comparison

Chapter 6 Summary

Summary at a Glance

Relationship	Value-Encoding Objects			
	Points	**Lines**	**Bars**	**Boxes**
Nominal Comparison	In the form of a dot plot when you can't use bars because the quantitative scale does not begin at zero	Avoid	Horizontal or vertical	Avoid
Time Series	In the form of a dot plot, but only when values were not collected at consistent intervals of time	Emphasis on overall pattern; categorical items on X axis, quantitative values on Y axis	Emphasis on individual values; categorical items on X axis, quantitative values on Y axis	Only when showing distributions as they change through time; categorical items on X axis, quantitative values on Y axis
Ranking	In the form of a dot plot, especially when you can't use bars because the quantitative scale does not begin at zero	Avoid	Horizontal or vertical	Only when ranking multiple distributions; horizontal or vertical
Part-to-Whole	Avoid	To display how parts of a whole have changed through time	Horizontal or vertical	Avoid
Deviation	As a dot plot when the quantitative scale does not begin at zero	Useful when combined with a time series	Horizontal or vertical, but always vertical when combined with time series	Avoid
Distribution				
Single	Known as a strip plot; emphasis on individual values	Known as a frequency polygon; emphasis on overall pattern	Known as a histogram; emphasis on individual intervals	Avoid
Multiple	Known as a strip plot; emphasis on individual values	Known as a frequency polygon; limit to a few lines	Avoid	Known as a box plot
Correlation	Known as a scatter plot	Avoid	Horizontal or vertical, in the form of a table lens	Avoid
Geospatial	Vary point sizes to encode values	To mark routes	Avoid	Avoid
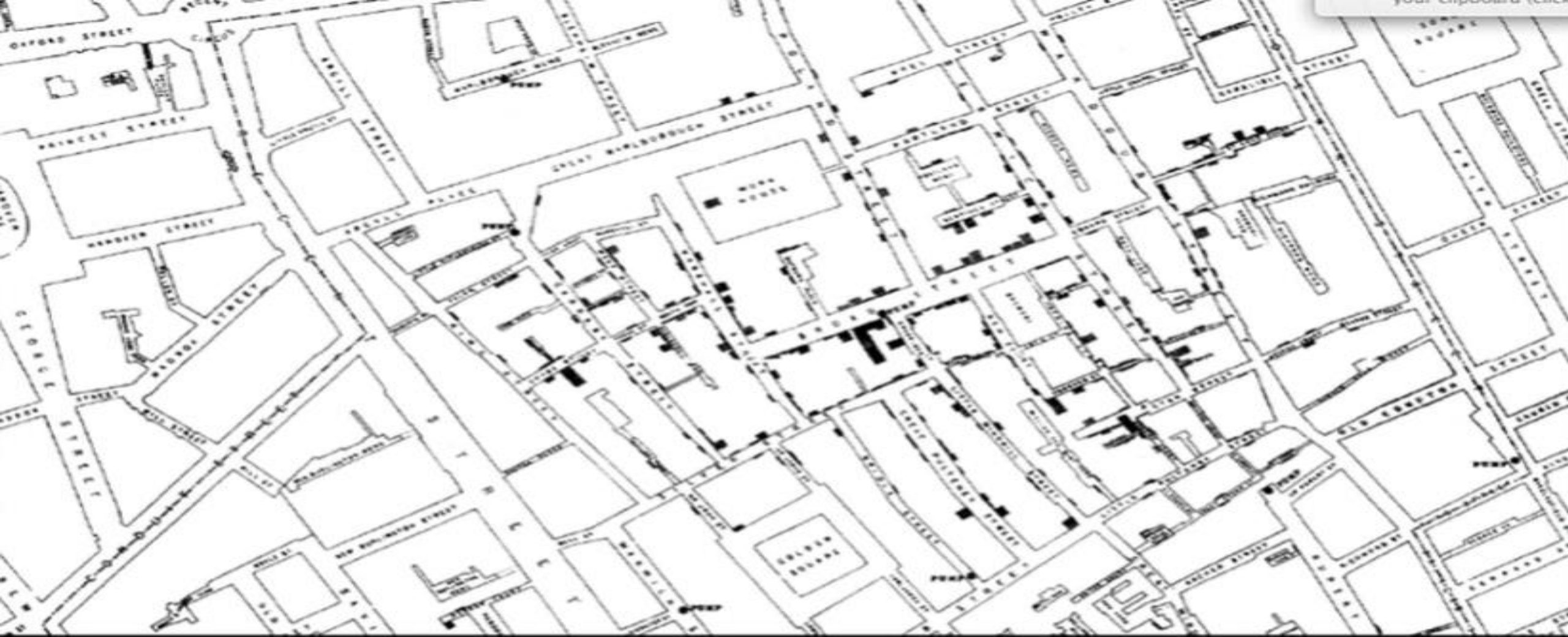
"It's more complicated than that"

Infographics and visualization that oversimplify or obfuscate

By Alberto Cairo

FIGURE 4.2 United States vs. international health spending, 2012

$R^2 = 0.7147$

USA

(Axis labels) Health spending per capita (USD PPP) — 0, 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000

GDP per capita (USD PPP) — 0, 15000, 30000, 45000, 60000, 75000

Country markers: NOR, CHE, NLD, LUX, DNK, CAN, DEU, AUT, FRA, BEL, SWE, IRE, GBR, ISL, AUS, ITA, FIN, NZL, ESP, GRC, JPN, PRT, SVN, SVK, ISR, CZE, KOR, HUN, EST, POL, CHL, BRA, RUS, ZAF, MEX, TUR, CHN, IND, IDN
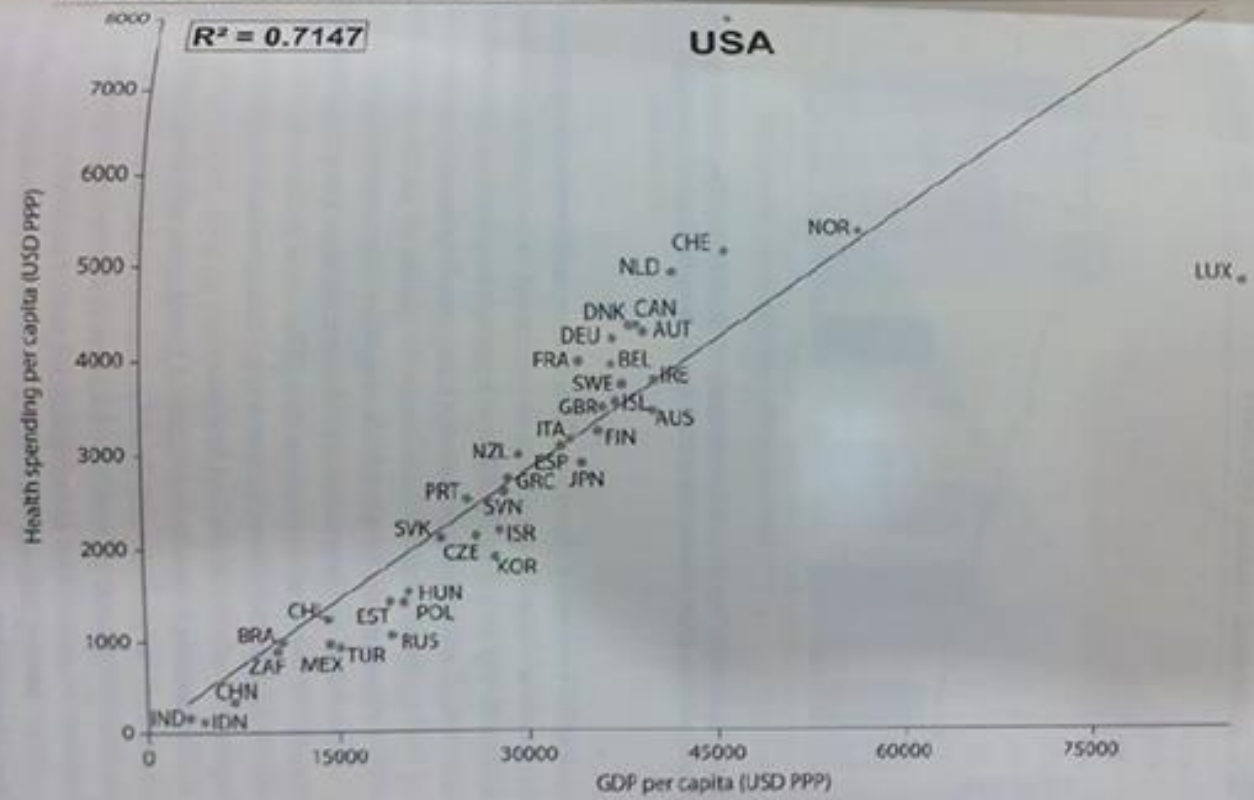
Source: OECD Health Data 2011. WHO Global Health Expenditure Database.

FIGURE 2.13 Health coverage map
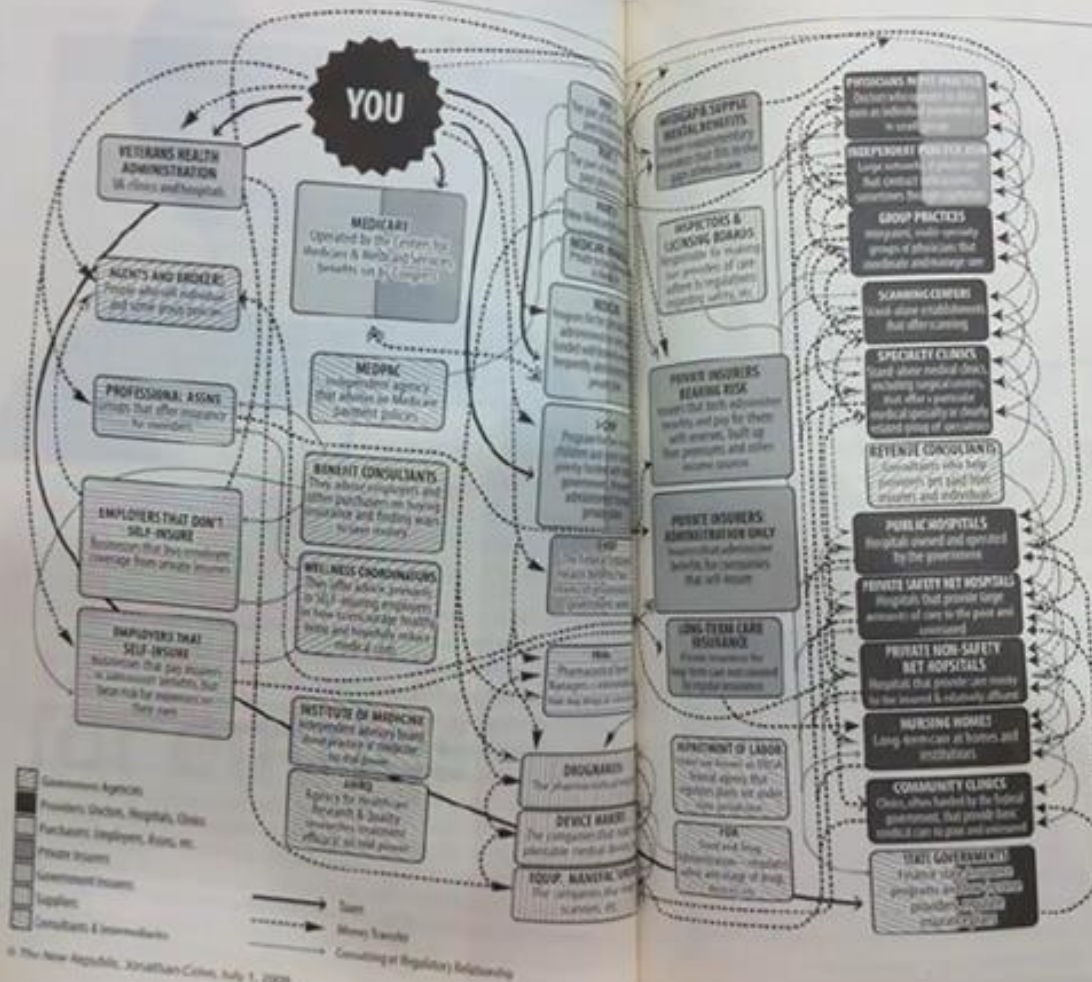
Health coverage map

Why is this topic?

RECOMMENDATION 1

Stories are always more complicated than
they seem at first. So don't oversimplify

2013 Survey Overview

In response to interest from member plans, this year's survey includes pricing for several specialty prescription drugs, along with prices for other prescription drugs and a variety of medical procedures. Prices for each country are submitted by participating federation member plans, and are drawn from public or commercial sectors as follows:

- Prices for the United States are calculated from a database with over 100 million claims that reflect prices negotiated and paid between thousands of providers and almost a hundred commercial health plans

- Prices for Australia, Argentina, and Spain are from the private sector, with data provided by one private health plan in each country

- Prices for Canada and Netherlands are from the public sector, with data provided by one private health plan in each country

- Medical procedure prices for Switzerland, England and New Zealand are from the private sector; prescription drug prices are based on public sector prices. Prices are provided by one private health plan in each country

Comparisons across different countries are complicated by differences in sectors, fee schedules, and systems. In addition, a single plan's prices may not be representative of prices paid by other plans in that market.

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D26

	A	B	C	D	E	F	G	H
1		Day in hospital	GDP per capita PPP	% over GDP PPP Per capita				
2	New Zealand	2491	30493	8.2				
3	US	4293	53101	8.1				
4	Argentina	702	18749	3.7				
5	Australia	1308	43073	3.0				
6	Spain	481	29851	1.6				
7								
8								
9		Delivering baby. Cost						
10	US	10002	53101	18.8				
11	Switzerland	8307	46430	17.9				
12	Spain	2251	29851	7.5				
13	Netherlands	2824	41711	6.8				
14	Australia	6623	43073	15.4				
15	Argentina	2237	18749	11.9				
16								
17		C-Section						
18	US	15240	53101	28.7				
19	Switzerland	10681	46430	23.0				
20	Spain	2972	29851	10.0				
21	Netherlands	5492	41711	13.2				
22	Australia	10263	43073	23.8				
23	Argentina	2844	18749	15.2				
24					0 5 10 15 20 25 30			

Find

Arial | 10

D26

	A	B	C	D	E	F	G	H
1		Day in hospital	GDP per capita PPP	% over GDP PPP Per capita				
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13	Netherlands							
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15	Argentina							
16								
17		C-Section						
18	US							
19	Switzerland							
20	Spain							
21	Netherlands							
22	Australia							
23	Argentina							
24								

CARD 2 OF 16

A day in a hospital costs $4,293 here — and $702 in Argentina

Average cost of one day in a hospital (2013)

United States — 4,293
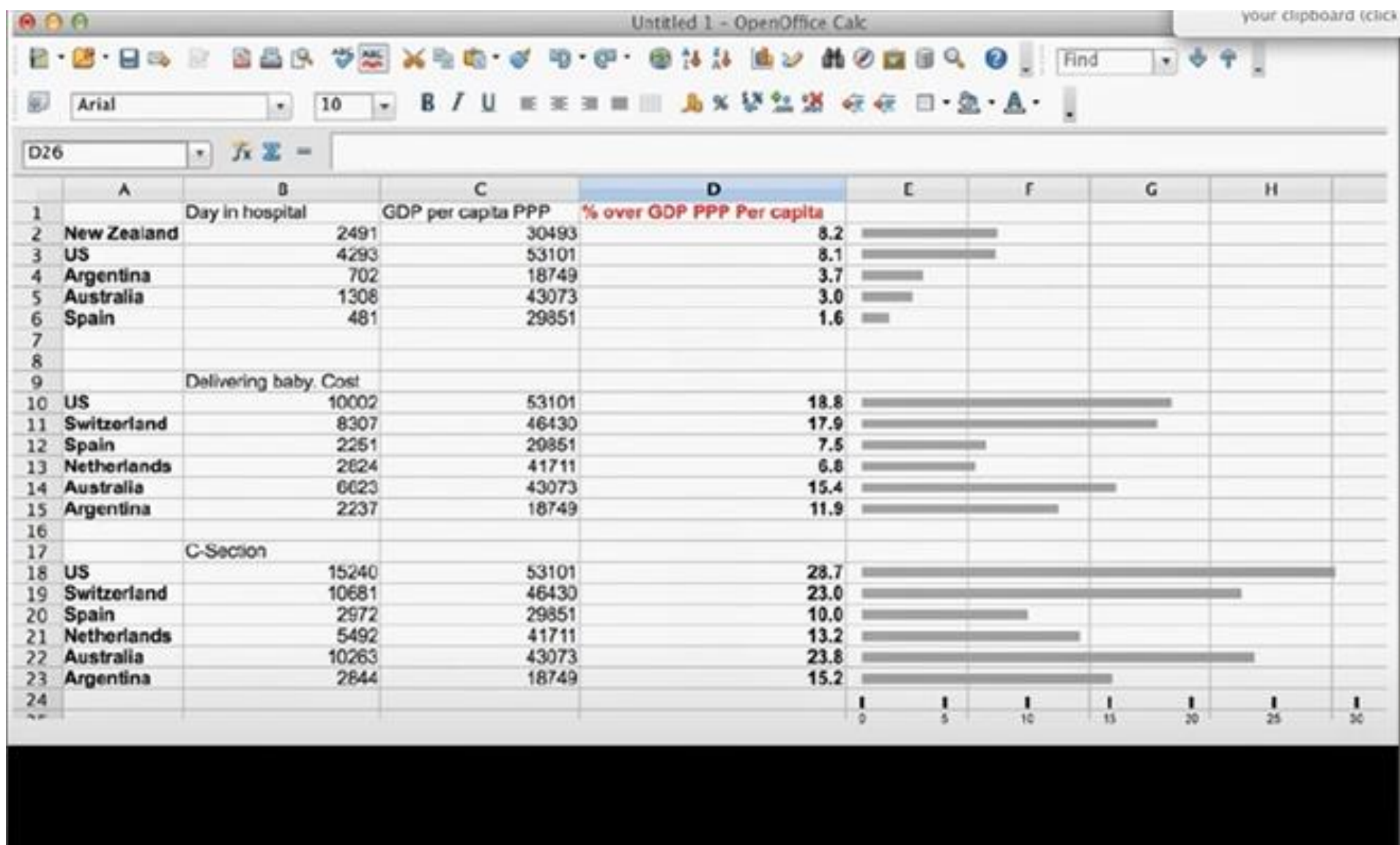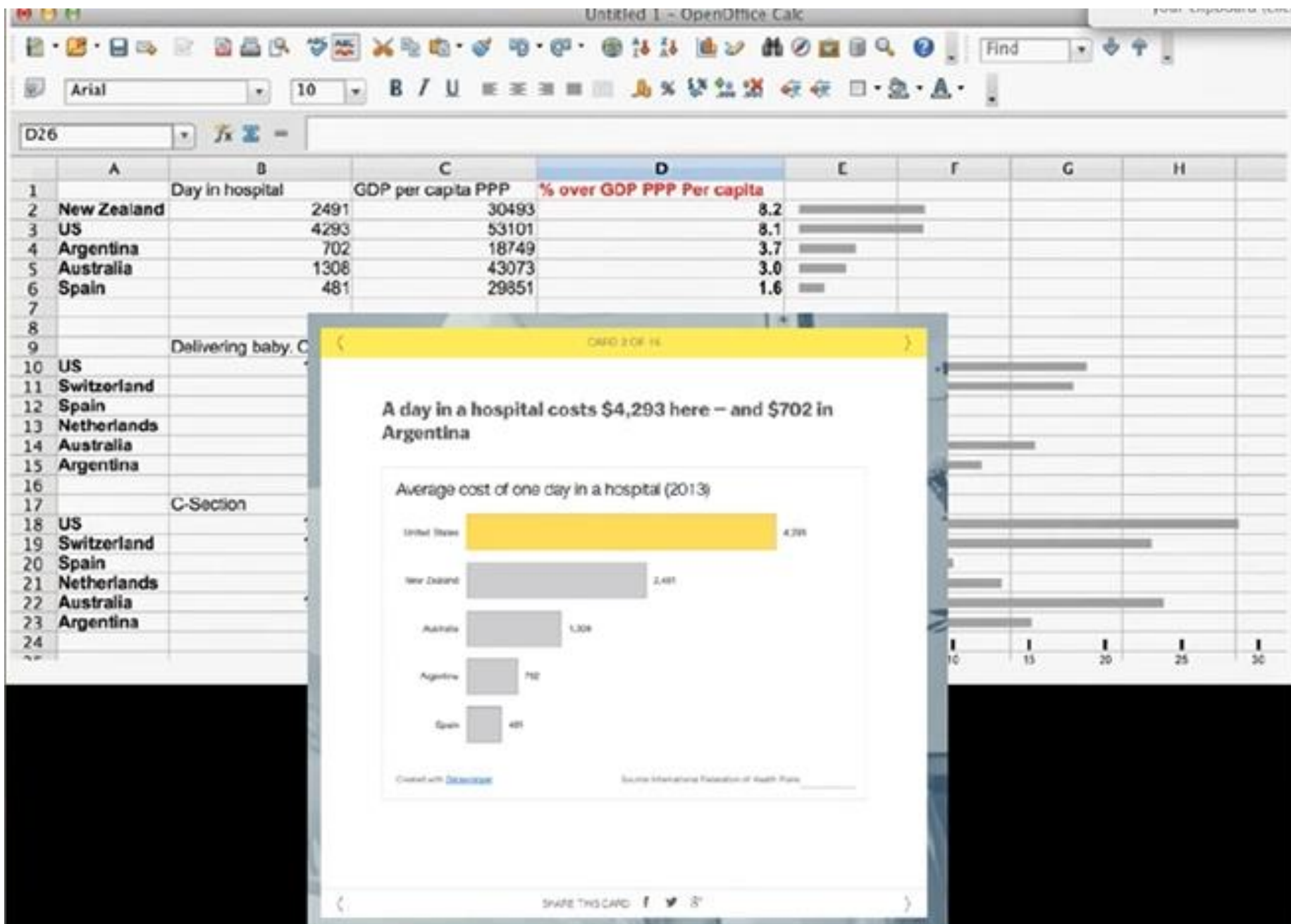New Zealand — 2,491
Australia — 1,308
Argentina — 702
Spain — 481
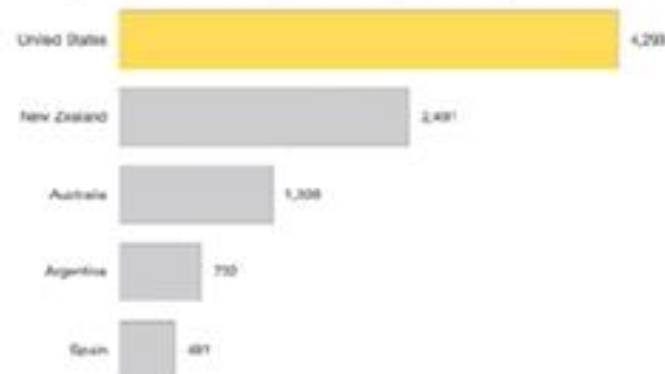
Created with Datawrapper   Source: International Federation of Health Plans

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"The first principle is that you must
not fool yourself--and you are
the easiest person to fool"

Richard Feynman, 1974, Caltech Graduation Address
http://www.lhup.edu/~DSIMANEK/cargocul.htm

Ukraine Parliament Moves Swiftly to Dismantle President's Government

By DAVID M. HERSZENHORN   FEB. 23, 2014

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KIEV, Ukraine — A day after President Viktor F. Yanukovych fled the Ukrainian capital and was removed from power by a unanimous vote in Parliament, lawmakers moved swiftly on Sunday to dismantle the remaining vestiges of his government by firing top cabinet members, including the foreign minister.

With Parliament, led by the speaker, Oleksandr V. Turchynov, firmly in control of the federal government — if not yet the country as a whole — lawmakers began an emergency session on Sunday by adopting a law restoring state ownership of Mr. Yanukovych's opulent presidential palace, which he had privatized.
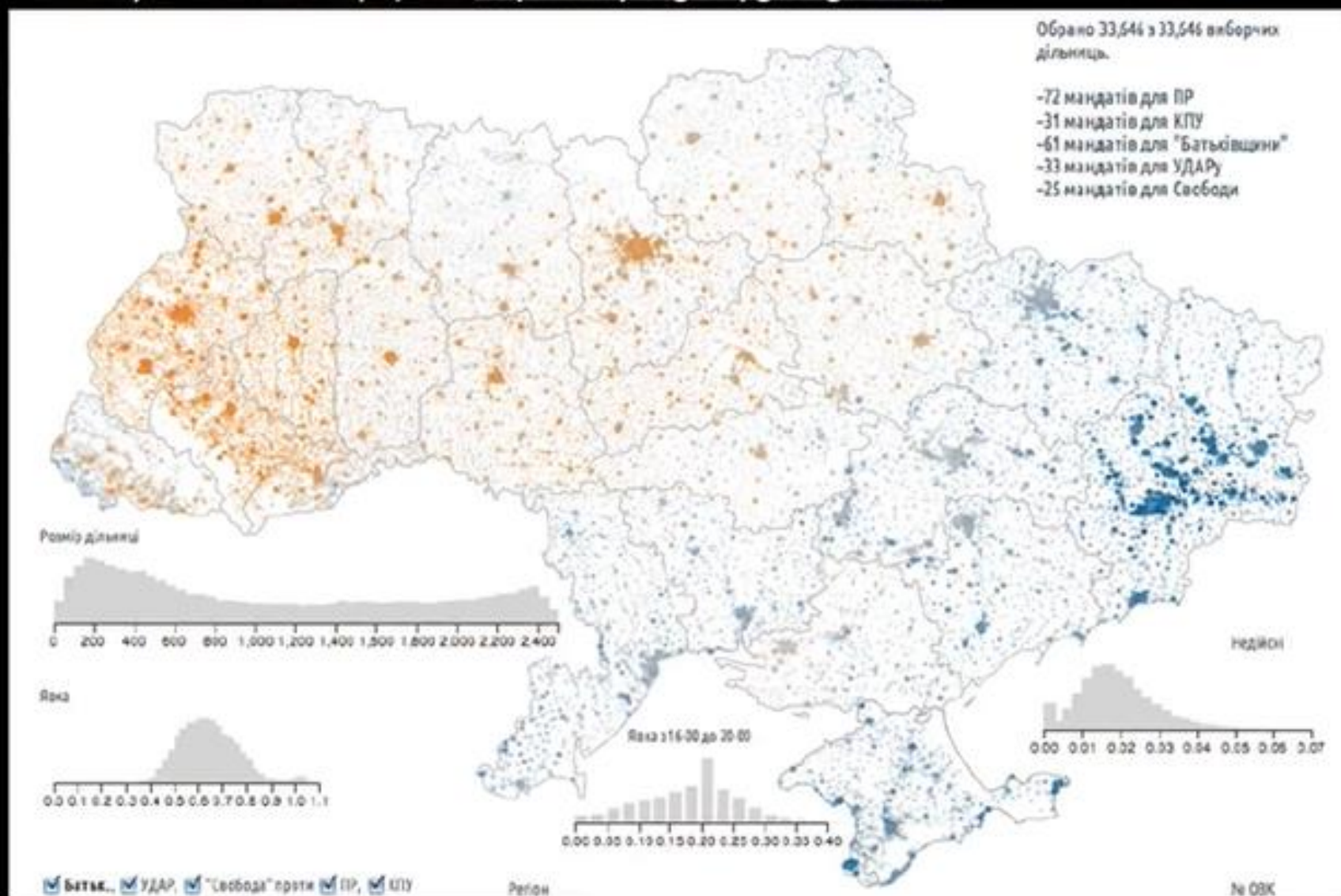
Parliament voted to grant Mr. Turchynov authority to carry out the duties of the president of Ukraine, adding to his authority to
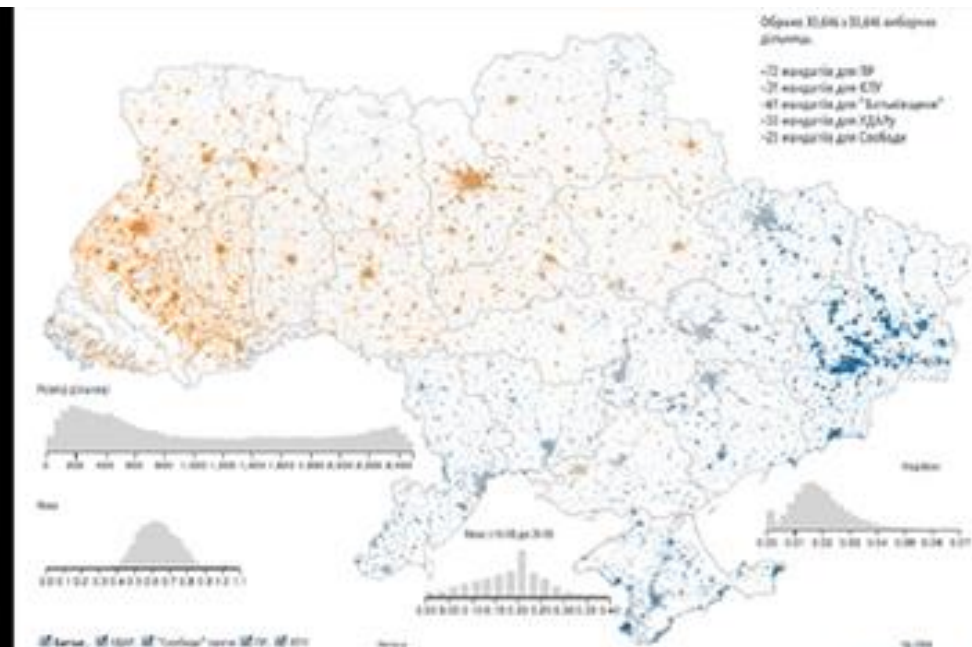
VIEW SLIDE SHOW | 9 Photos

Taking Stock in Ukraine

Sergey Ponomarev for The New York Times

The Washington Post
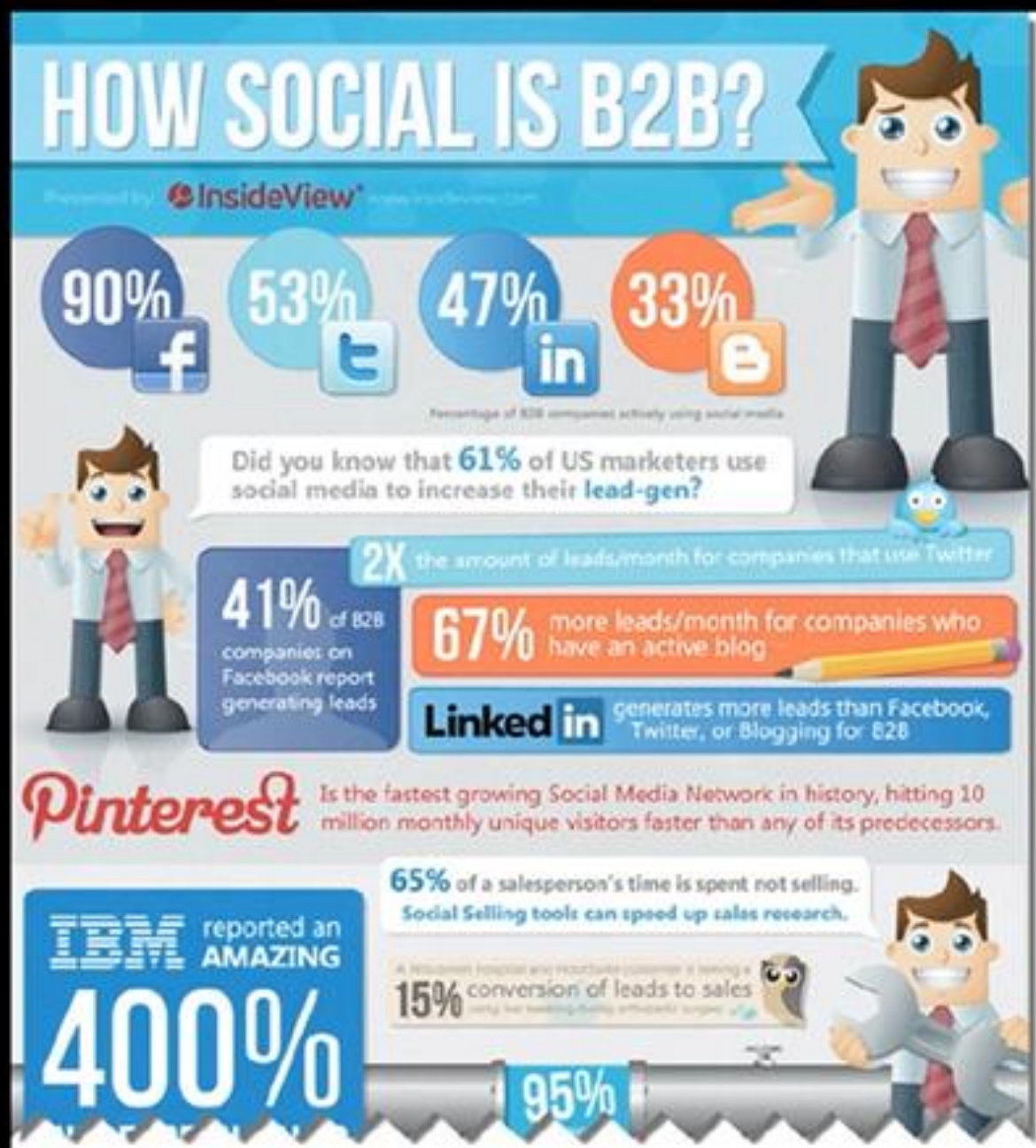
Ukraine's deepening political crisis

Although President Viktor Yanukovych's pro-Russian government is located in Kiev, the city and surrounding countryside are predominantly Western-leaning. Tuesday's violent clashes underscore the difficulties Ukrainians face as both sides struggle to control the nation' identity. Read related article.

Protestors seize a number of government administration buildings in Lviv.

Tuesday night, government Security forces storm the Kiev protest camp in Independence Square. At least 26 people, including police officers are killed and about 800 injured in the day's fighting.

Percentage of population that identified **Russian** as their native language (2001 census)

10%
20
30
50%

The Crimean parliament declares the fighting in Kiev as the beginning of a civil war and officially asks Yanukovych to escalate his response accordingly. Crimea's largest city, Sevastopol, is home to Russia's Black Sea fleet.

Source: Ukraine Census 2001. Map: Gene Thorp and Laris Karklis/The Washington Post. Published on February 19, 2014, 5:56 p.m.

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Unrest reported

BELARUS · Lutsk · Rivne · Sumy · Zhytomyr · Kiev · POLAND · Lviv · Ternopil · Khmelnytsky · RUSSIA · Ivano-Frankivsk · Vinnytsya · Cherkasy · Chernivtsi · MOLDOVA · UKRAINE · ROMANIA · Crimea

It's more complicated than that...

In favor of strengthening ties with the European Union — In favor of Custom Union with Russia

WEST
CENTER
SOUTH
EAST

0%   50%   100%

BELARUS
POLAND
Lutsk
Rivne
Sumy
Zhytomyr
Kiev
Lviv
Ternopil
Khmelnytsky
Cherkasy
Ivano-Frankivsk
Vinnytsya
Chernivtsi
MOLDOVA
UKRAINE
RUSSIA
ROMANIA
Crimea

Unrest reported

КАРТА МАСОВИХ ПРОТЕСТІВ В УКРАЇНІ

взяли ОДА/визнали НР
блокування/спроба штурму ОДА
масові протести

Inspired

This is why you should distrust "infographics" like this one

They are the equivalent of publishing a headline without a story that offers more detail.