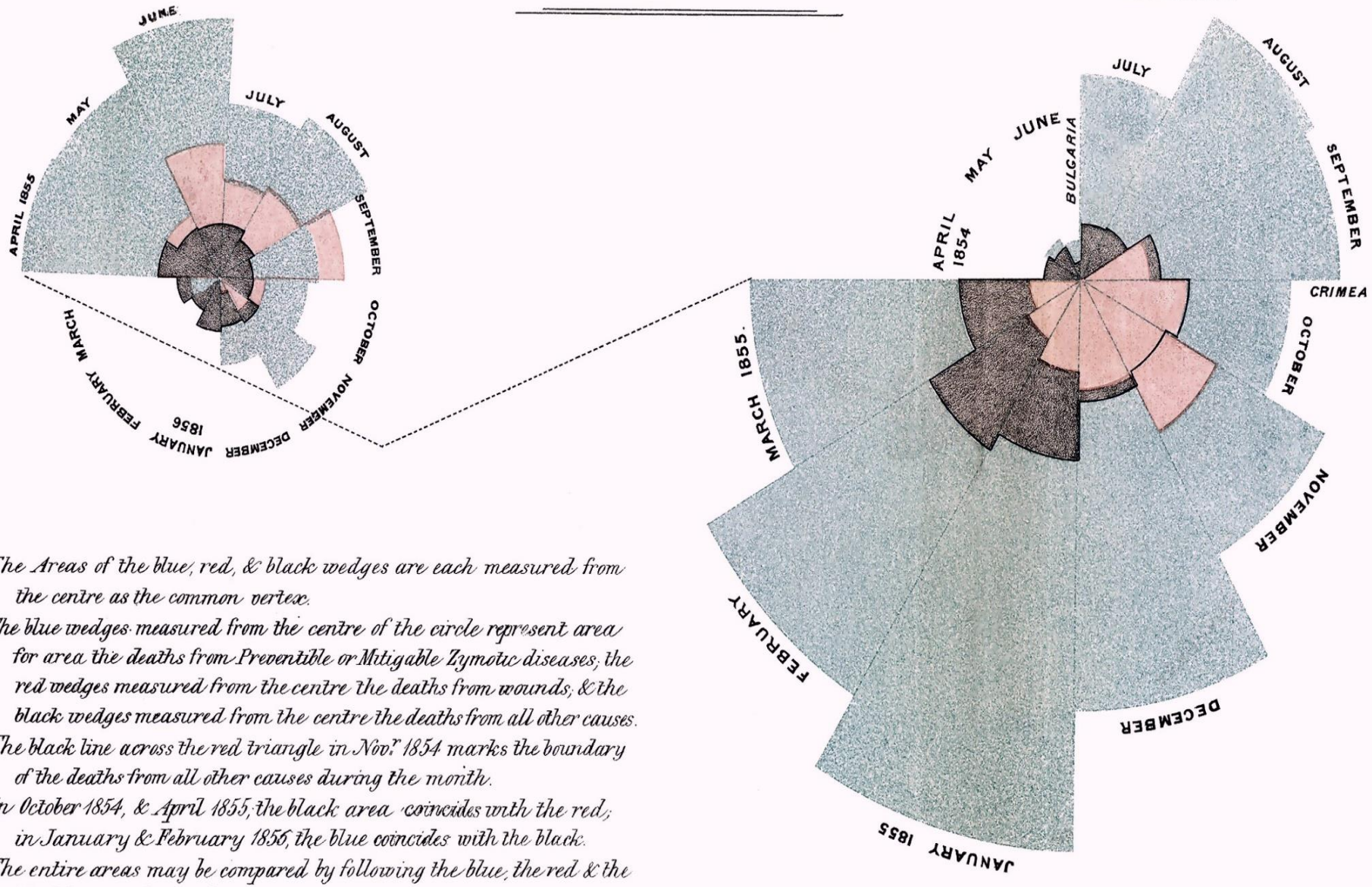
Make health data more engaging

1856

DIAGRAM of the CAUSES of MORTALITY IN THE ARMY IN THE EAST.

2.
APRIL 1855 to MARCH 1856.

1.
APRIL 1854 to MARCH 1855.



The Areas of the blue, red, & black wedges are each measured from the centre as the common vertex.

The blue wedges measured from the centre of the circle represent area for area the deaths from Preventible or Mitigable Zymotic diseases; the red wedges measured from the centre the deaths from wounds; & the black wedges measured from the centre the deaths from all other causes.

The black line across the red triangle in Nov.r 1854 marks the boundary of the deaths from all other causes during the month.

In October 1854, & April 1855, the black area coincides with the red; in January & February 1856, the blue coincides with the black.

The entire areas may be compared by following the blue, the red & the black lines enclosing them.

1993

The start of the information Age

Process and syste

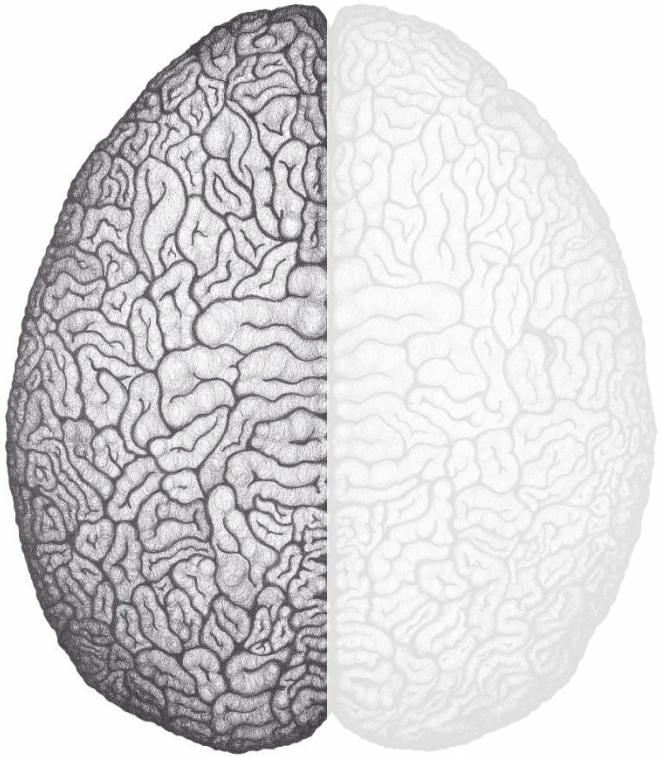
Details

Information

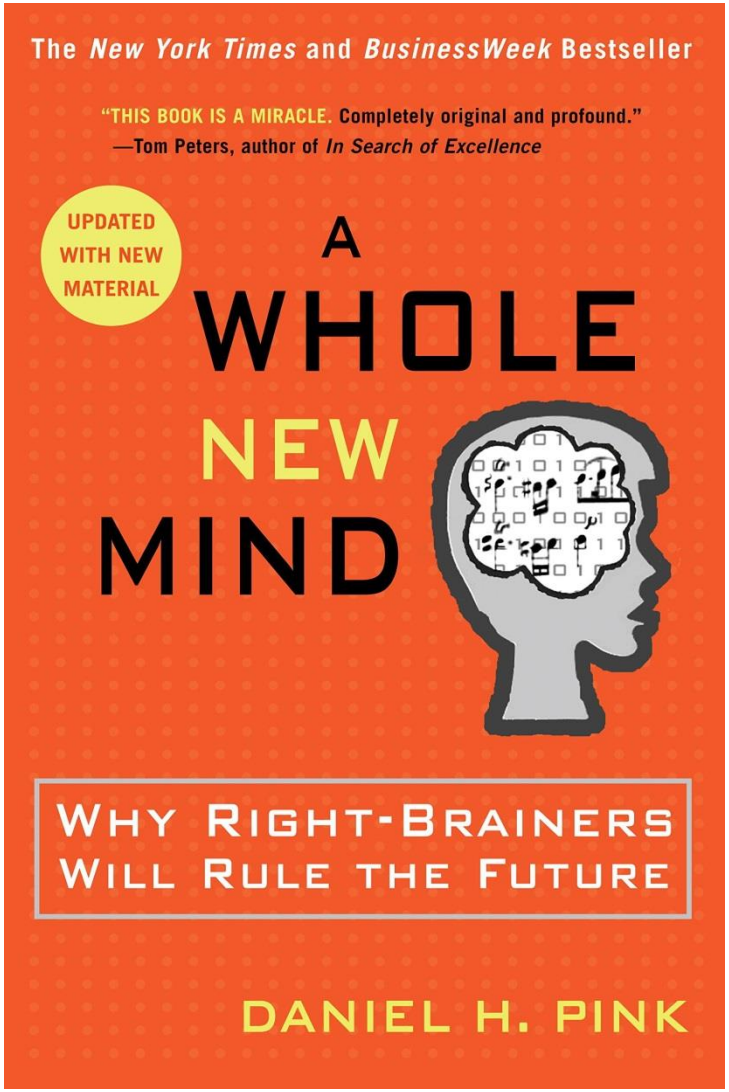
Data

Logic

Numbers

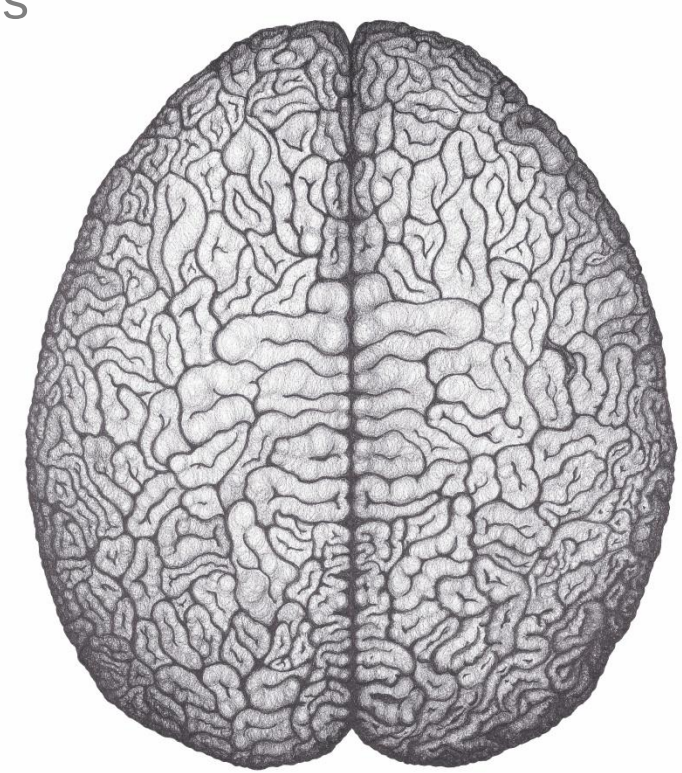


The end of the Information Age

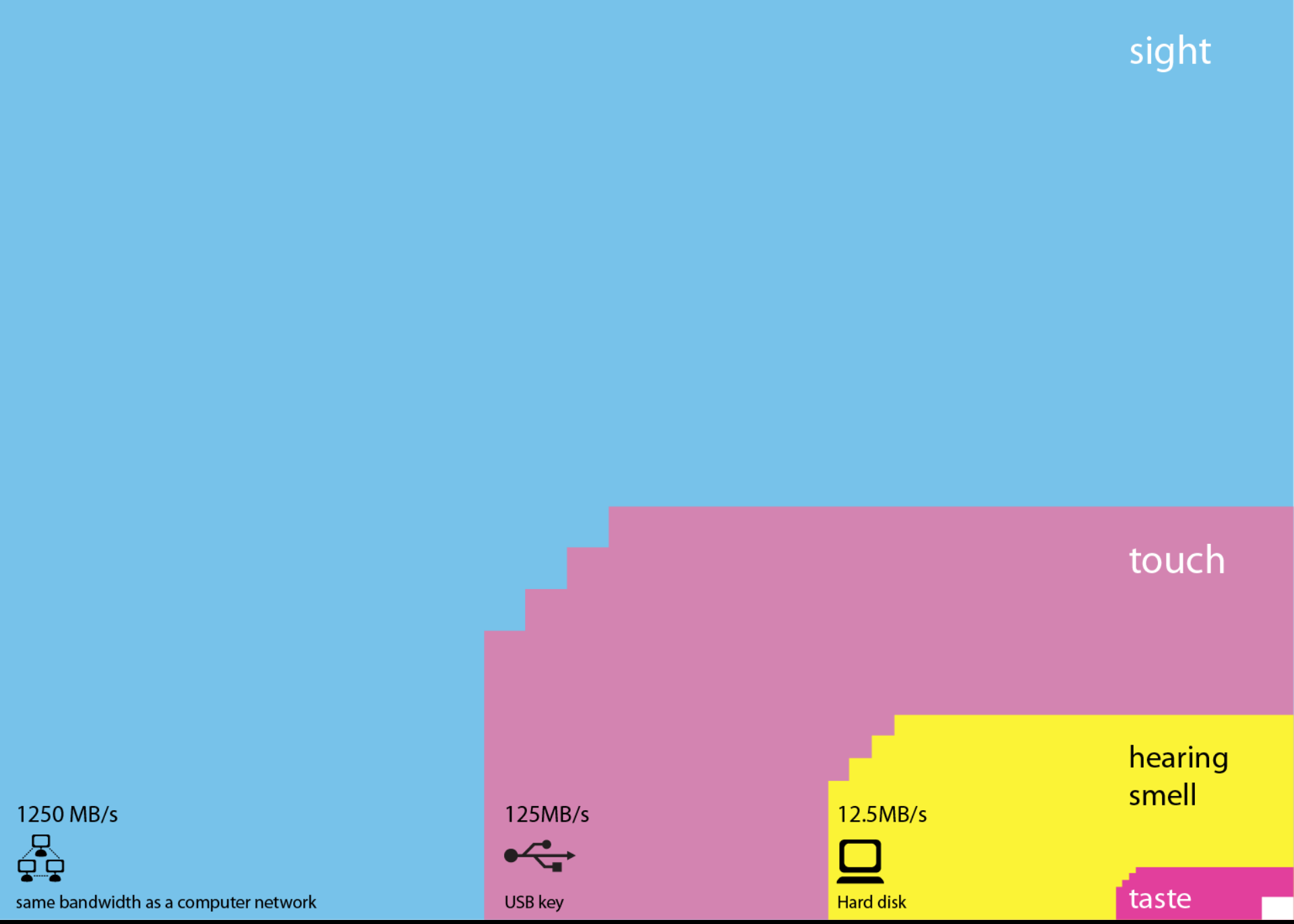

The New York Times and BusinessWeek Bestseller
"THIS BOOK IS A MIRACLE. Completely original and profound."
—Tom Peters, author of In Search of Excellence
UPDATED WITH NEW MATERIAL
A WHOLE NEW MIND
WHY RIGHT-BRAINERS WILL RULE THE FUTURE
DANIEL H. PINK

The beginning of the Conceptual Age

Process and systems	Holistic
Details	Simplicity
Information	Empathy
Data	Story
Logic	Creative
Numbers	Design



We’re wired for visualisation


sight
touch
hearing
smell
taste
1250 MB/s
same bandwidth as a computer network
125MB/s
USB key
12.5MB/s
Hard disk

CLINICAL TRIALS EXPLAINED

CLINICAL TRIALS – A CRUCIAL LINK IN THE RESEARCH AND DEVELOPMENT (R&D) CHAIN

What is a Clinical Trial?

- Clinical trials are research studies of medicines in humans

- They assess whether a potential new medicine is safe for patients and effective in treating the target disease.
- A clinical trial study can be funded by academics, government or industry and are conducted by investigators.

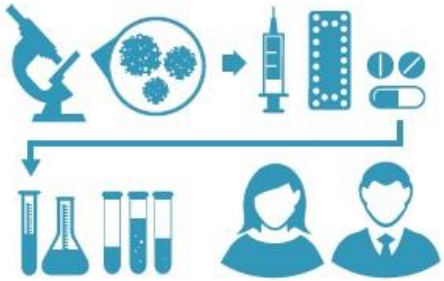
- The clinical trial participant eligibility criteria are specifically defined on a trial by trial basis. A research plan called a clinical trials protocol is designed to answer specific research questions and safeguard the health of the participants.

13 YEARS	2 YEARS	6 MONTHS – 2 YEARS	ONGOING

START ▸▸ ▸▸ END

Getting started

Scientists begin by analysing the disease and investigating a possible treatment. Preclinical trials then establish initial safety and effectiveness before testing on humans. These tests are often done in the laboratory, using 'in vitro' (test tube) research.



CLINICAL TRIALS

CHECK FOR SAFETY

Phase I investigate the molecule's safety and research how it works and behaves in the human body

Population 20 - 80 healthy volunteers

Timeline between weeks and months

CHECK FOR EFFICACY; CONTINUE SAFETY EVALUATION

Phase II investigate efficacy; investigate side effects and risks

Population several hundred people who have the disease

Timeline between several months & several years

CONFIRM RESULTS

Phase III seeks to establish the benefit-risk, the right patients and the best way to manage the risks.

Population several thousand people who have the disease

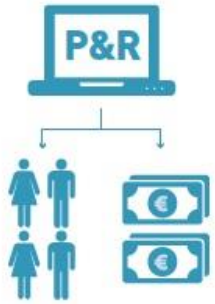
Timeline between several months & several years

Regulatory approval

Regulators such as the European Medicines Agency (EMA) review safety, efficacy and quality and authorise a medicine for use.

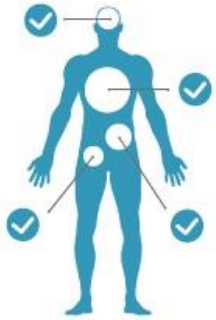
Pricing and reimbursement processes

Decide on price and reimbursement of the product, including health technology assessment (HTA) of added value compared with current treatments.



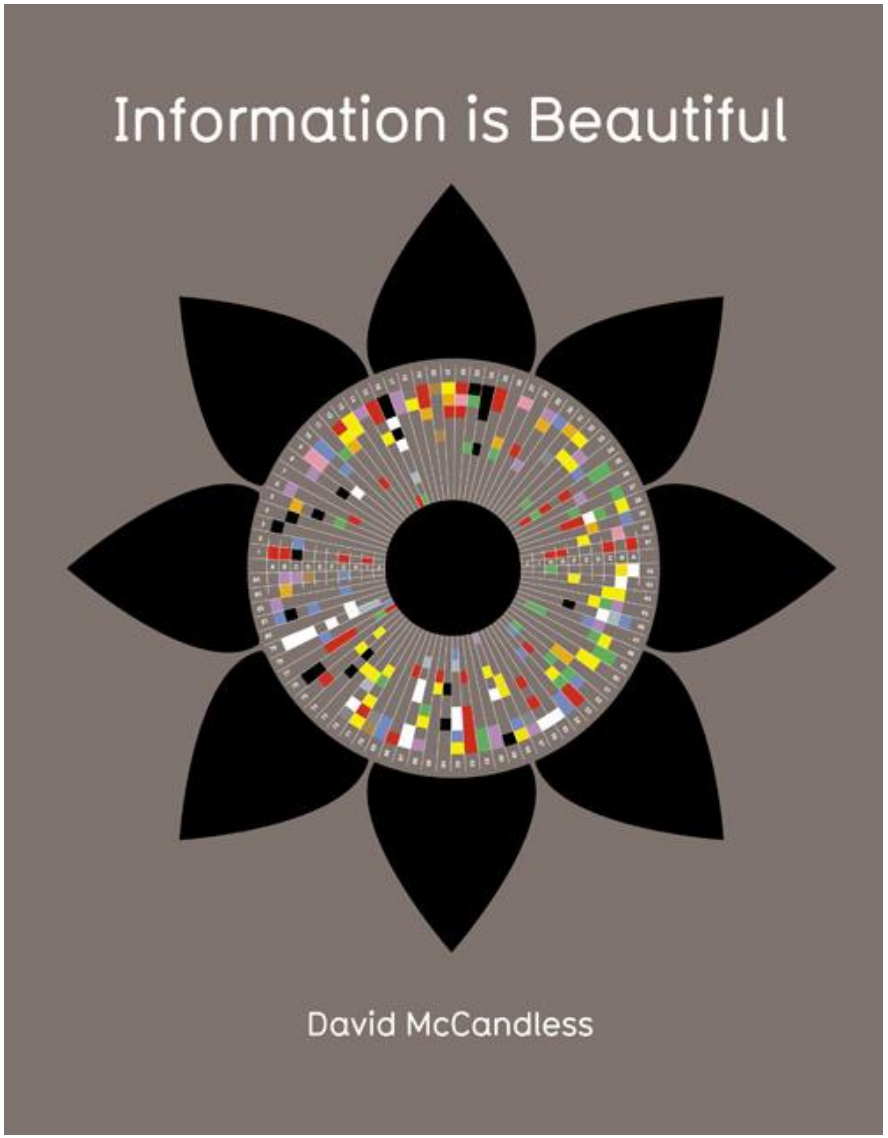
Phase IV (post market launch)

Continued safety surveillance through post market studies; identifying potential new uses for the medicine.



*timings used are averages and for illustrative purposes only

Data journalists


Information is Beautiful
David McCandless

Horoscoped

Most common words in star sign predictions

Massive Outgoings

Cost for average British taxpayer per day

GOVERNMENTS

ESSENTIALS

NHS	Schools	Defence
£9.05	£2.56	£3.99

TRAVEL

Roads	LRT
£3.10	£0.14

BANKING CHARGES

Recapitalisations

The Royal Bank of Scotland
Lloyds TSB
northern rock
Bradford & Bingley*

£9.23

SECURITY

Police	Prisons	Afghanistan
£0.53	£0.19	£0.32

GOING OUT

Arts	Museums
£0.04	£0.03

HELPING OTHERS

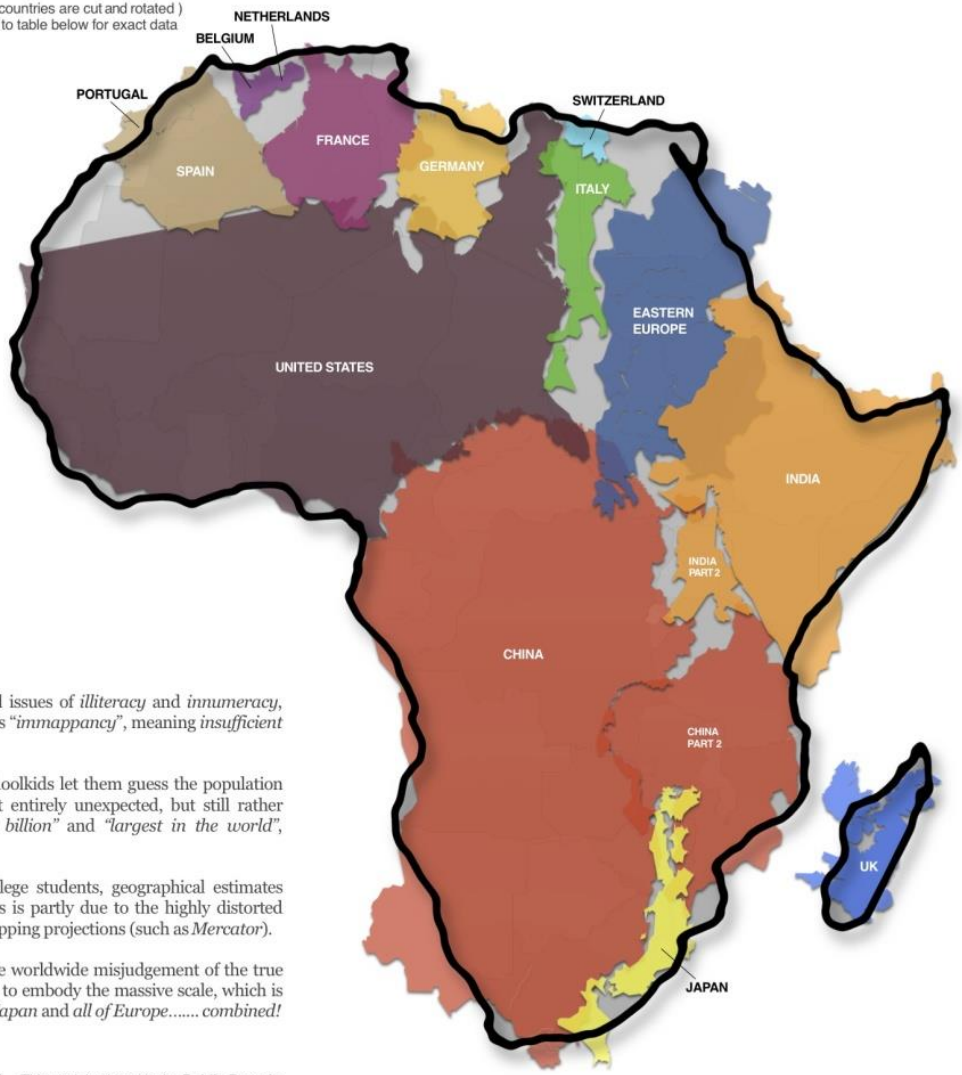
Child support	Job Seekers	Housing benefit	Disability benefit	Pensions	Overseas aid
£1.86	£0.25	£1.52	£1.44	£5.55	£0.43

The **True Size** of **Africa**

A small contribution in the fight against rampant *Immappancy*, by **Kai Krause**

Graphic layout for visualization only (some countries are cut and rotated)
But the conclusions are very accurate: refer to table below for exact data

COUNTRY	AREA x 1000 km²
China	9.597
USA	9.629
India	3.287
Mexico	1.964
Peru	1.285
France	633
Spain	506
Papua New Guinea	462
Sweden	441
Japan	378
Germany	357
Norway	324
Italy	301
New Zealand	270
United Kingdom	243
Nepal	147
Bangladesh	144
Greece	132
TOTAL	**30.102**
AFRICA	**30.221**



In addition to the well known social issues of *illiteracy* and *innumeracy*, there also should be such a concept as "*immappancy*", meaning *insufficient geographical knowledge*.

A survey with random American schoolkids let them guess the population and land area of their country. Not entirely unexpected, but still rather unsettling, the majority chose *"1-2 billion"* and *"largest in the world"*, respectively.

Even with Asian and European college students, geographical estimates were often off by factors of *2-3*. This is partly due to the highly distorted nature of the predominantly used mapping projections (such as *Mercator*).

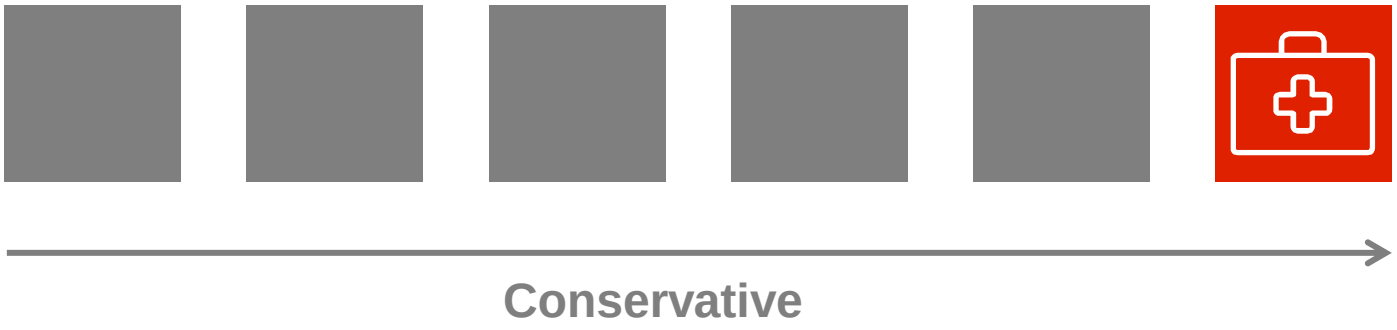
A particularly extreme example is the worldwide misjudgement of the true size of *Africa*. This single image tries to embody the massive scale, which is larger than the *USA*, *China*, *India*, *Japan* and *all of Europe..... combined!*

Top 100 Countries

Area in square kilometers, Percentage of World Total
Sources: Britannica, Wikipedia, Almanac 2010

		AREA km²	%
1	Russia	17.098.242	11,50
2	Canada	9.984.670	6,70
3	China	9.596.961	6,40
4	United States	9.629.091	6,40
5	Brazil	8.514.877	5,70
6	Australia	7.692.024	5,20
7	India	3.287.263	2,30
8	Argentina	2.780.400	2,00
9	Kazakhstan	2.724.900	1,80
10	Sudan	2.505.813	1,70
11	Algeria	2.381.741	1,60
12	Congo	2.344.858	1,60
13	Greenland	2.166.086	1,50
14	Saudi Arabia	2.149.690	1,40
15	Mexico	1.964.375	1,30
16	Indonesia	1.860.360	1,30
17	Libya	1.759.540	1,20
18	Iran	1.628.750	1,10
19	Mongolia	1.564.100	1,10
20	Peru	1.285.216	0,86
21	Chad	1.284.000	0,86
22	Niger	1.267.000	0,85
23	Angola	1.246.700	0,85
24	Mali	1.240.192	0,83
25	South Africa	1.221.037	0,82
26	Colombia	1.141.748	0,76
27	Ethiopia	1.104.300	0,74
28	Bolivia	1.098.581	0,74
29	Mauritania	1.025.520	0,69
30	Egypt	1.002.000	0,67
31	Tanzania	945.087	0,63
32	Nigeria	923.768	0,62
33	Venezuela	912.050	0,61
34	Namibia	824.116	0,55
35	Mozambique	801.590	0,54
36	Pakistan	796.095	0,53
37	Turkey	783.562	0,53
38	Chile	756.102	0,51
39	Zambia	752.612	0,51
40	Myanmar	676.578	0,45
41	Afghanistan	652.090	0,44
42	Somalia	637.657	0,43
43	France	632.834	0,43
44	C. African Rep	622.984	0,42
45	Ukraine	603.500	0,41
46	Madagascar	587.041	0,39
47	Botswana	582.000	0,39
48	Kenya	580.367	0,39
49	Yemen	527.968	0,35
50	Thailand	513.120	0,34
51	Spain	505.992	0,34
52	Turkmenistan	488.100	0,33
53	Cameroon	475.442	0,32
54	Papua New Guinea	462.840	0,31
55	Uzbekistan	447.400	0,30
56	Morocco	446.550	0,30
57	Sweden	441.370	0,30
58	Iraq	438.317	0,29
59	Paraguay	406.752	0,27
60	Zimbabwe	390.757	0,26
61	Japan	377.930	0,25
62	Germany	357.114	0,24
63	Rep o.t. Congo	342.000	0,23
64	Finland	338.419	0,23
65	Vietnam	331.212	0,22
66	Malaysia	330.803	0,22
67	Norway	323.802	0,22
68	Côte d'Ivoire	322.463	0,22
69	Poland	312.685	0,21
70	Oman	309.500	0,21
71	Italy	301.336	0,20
72	Philippines	300.000	0,20
73	Burkina Faso	274.222	0,18
74	New Zealand	270.467	0,18
75	Gabon	267.668	0,18
76	Western Sahara	266.000	0,18
77	Ecuador	256.369	0,20
78	Guinea	245.857	0,17
79	United Kingdom	242.900	0,16
80	Uganda	241.038	0,16
81	Ghana	238.539	0,16
82	Romania	238.391	0,16
83	Laos	236.800	0,16
84	Guyana	214.969	0,14
85	Belarus	207.600	0,14
86	Kyrgyzstan	199.951	0,13
87	Senegal	196.722	0,13
88	Syria	185.180	0,12
89	Cambodia	181.035	0,12
90	Uruguay	176.215	0,12
91	Suriname	163.820	0,11
92	Tunisia	163.610	0,11
93	Nepal	147.181	0,10
94	Bangladesh	143.998	0,10
95	Tajikistan	143.100	0,10
96	Greece	131.957	0,09
97	Nicaragua	130.373	0,09
98	North Korea	120.538	0,08
99	Malawi	118.484	0,08
100	Eritrea	117.600	0,08
	TOP 100 TOTAL	132.632.524	89,34

So what about health data?



Serious

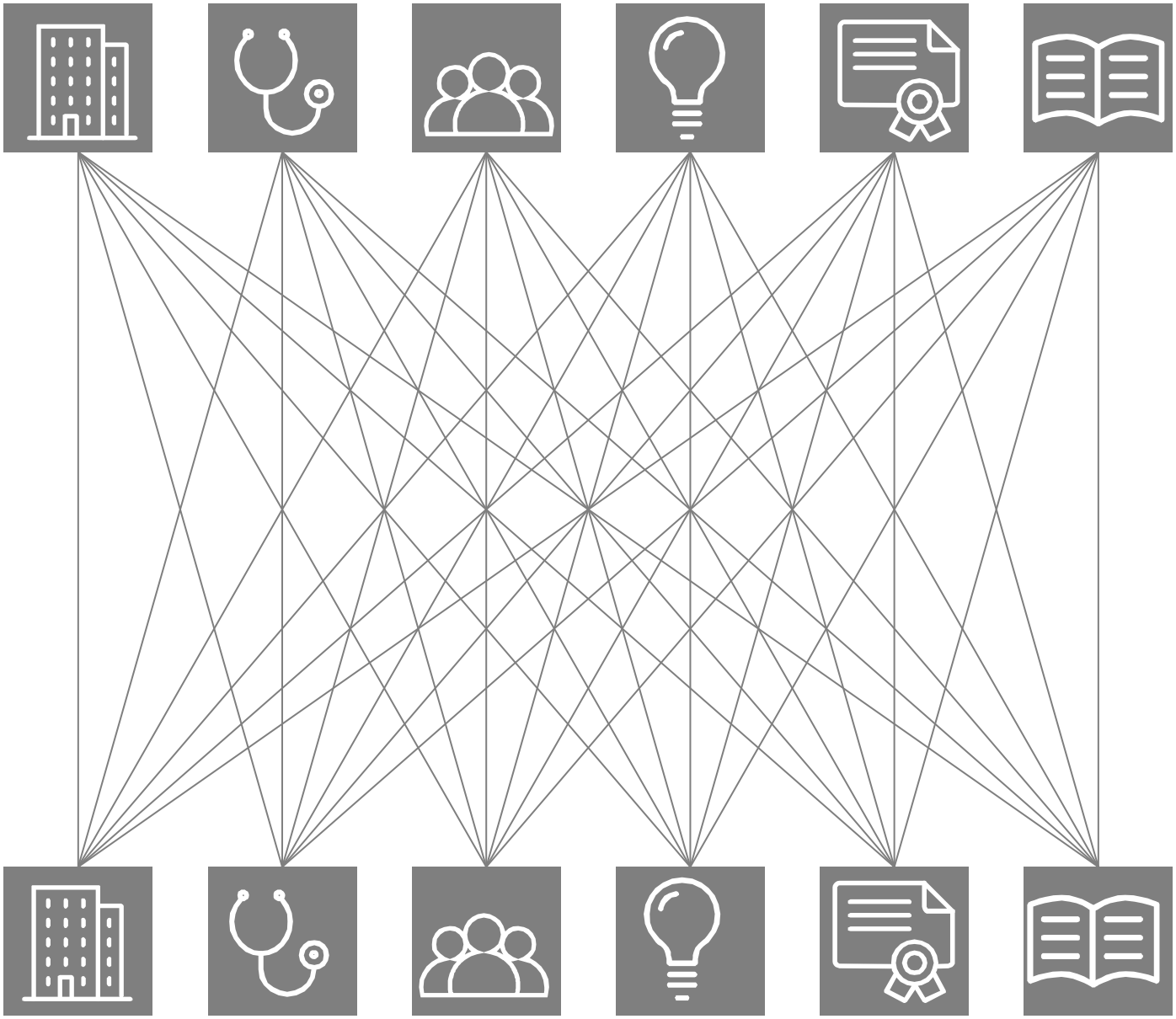
"life and death"

Evidence-based

Producer

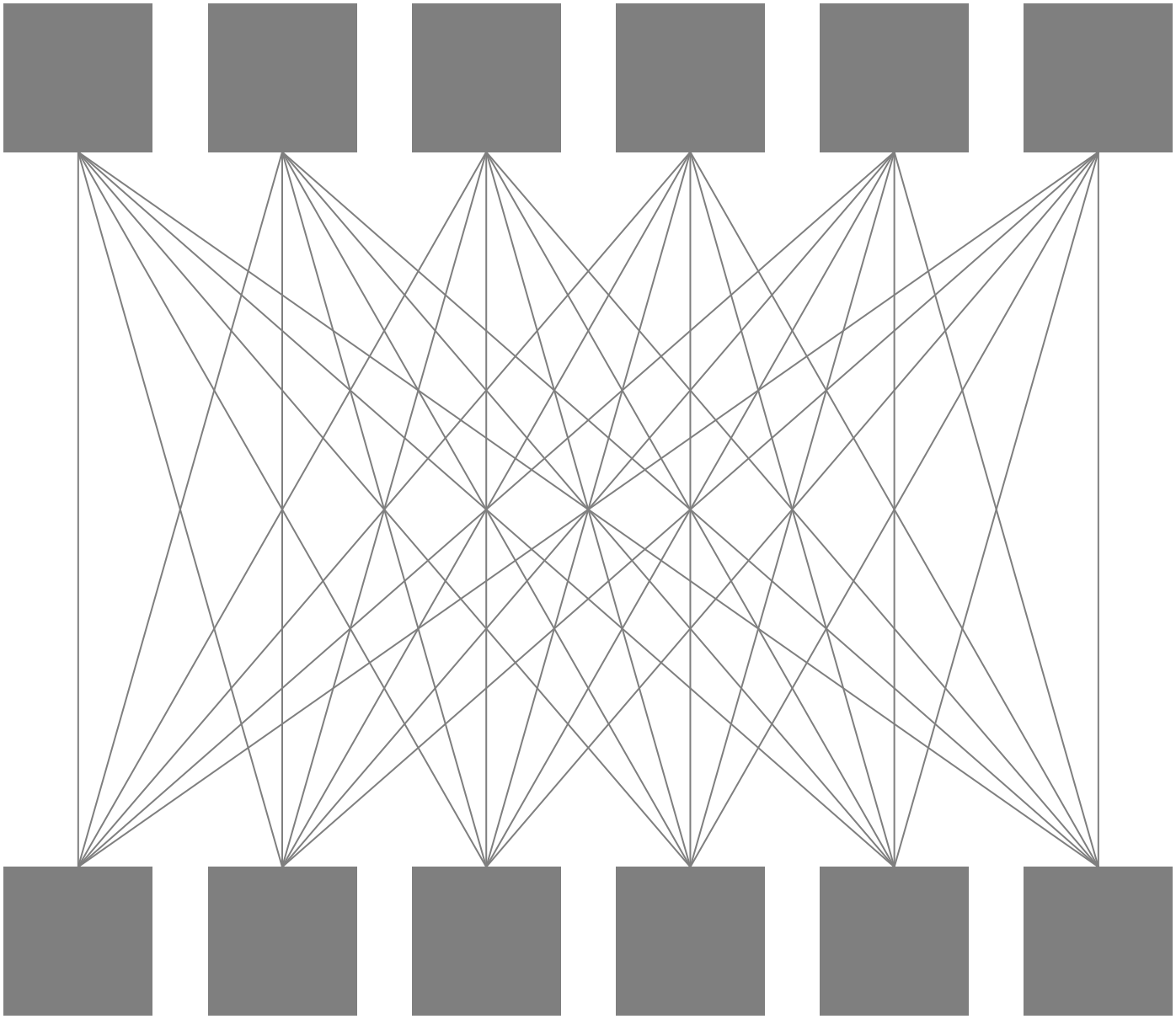
Audience

Producer



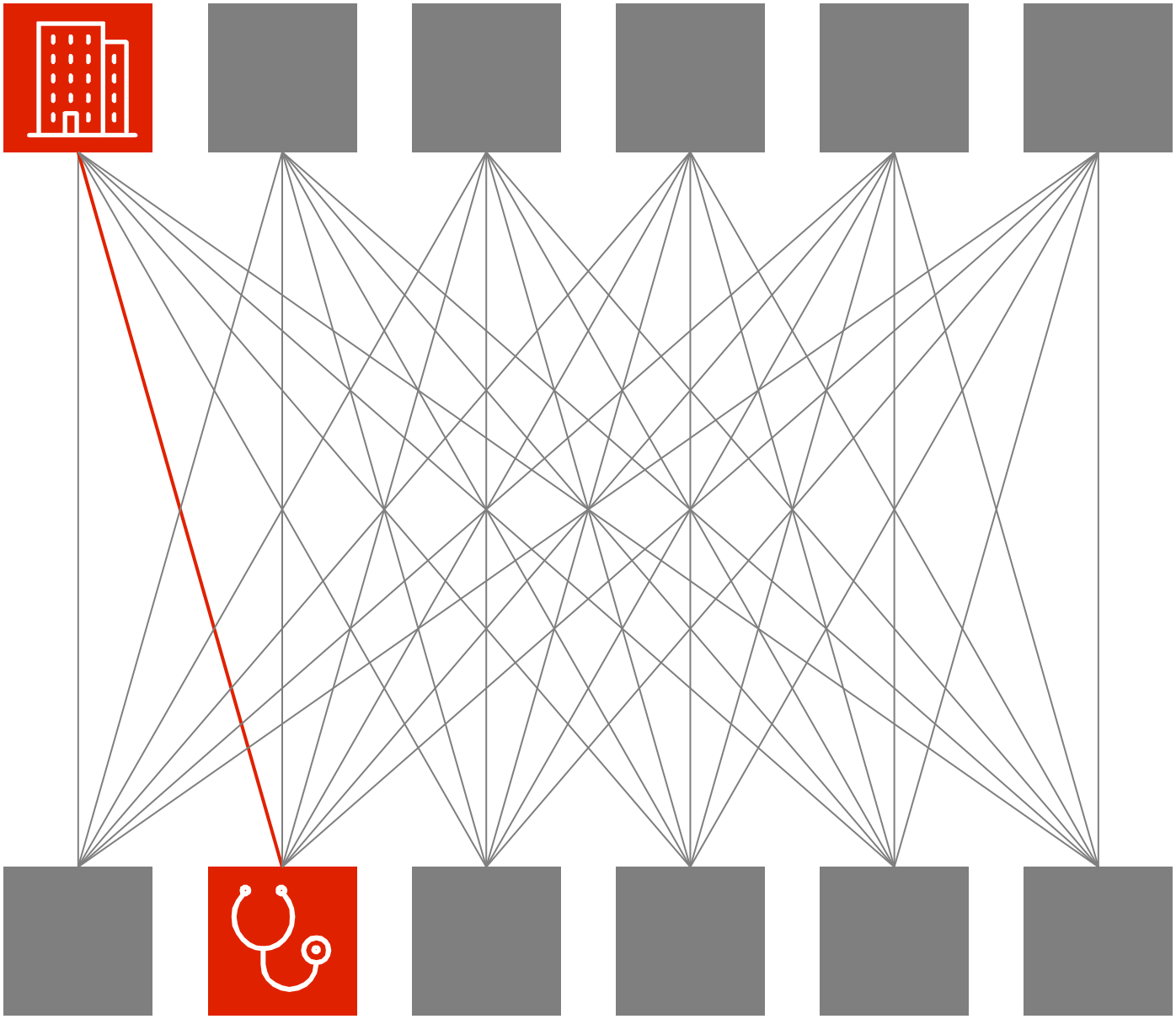
Audience

Producer



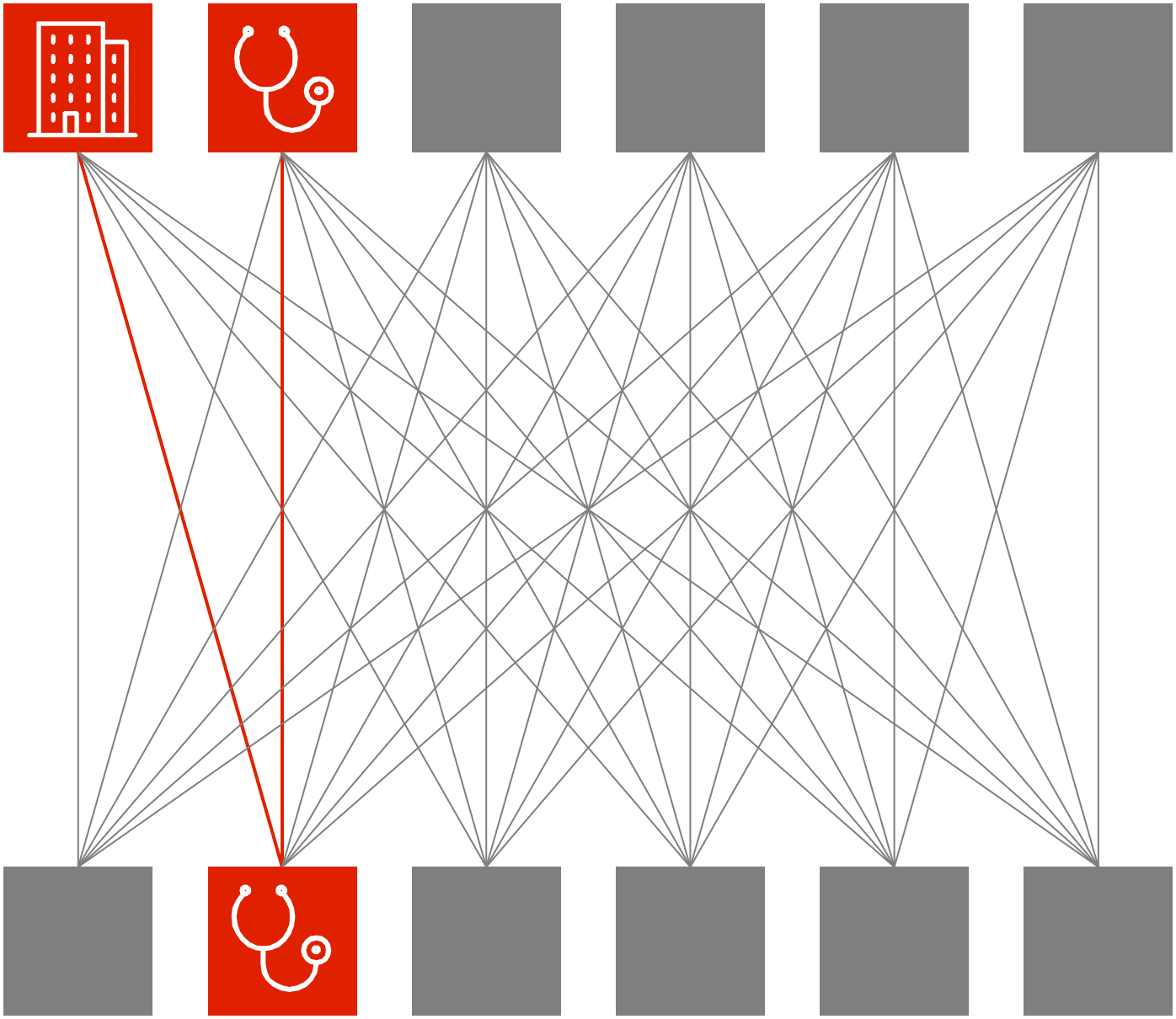
Audience

Producer



Audience

Producer

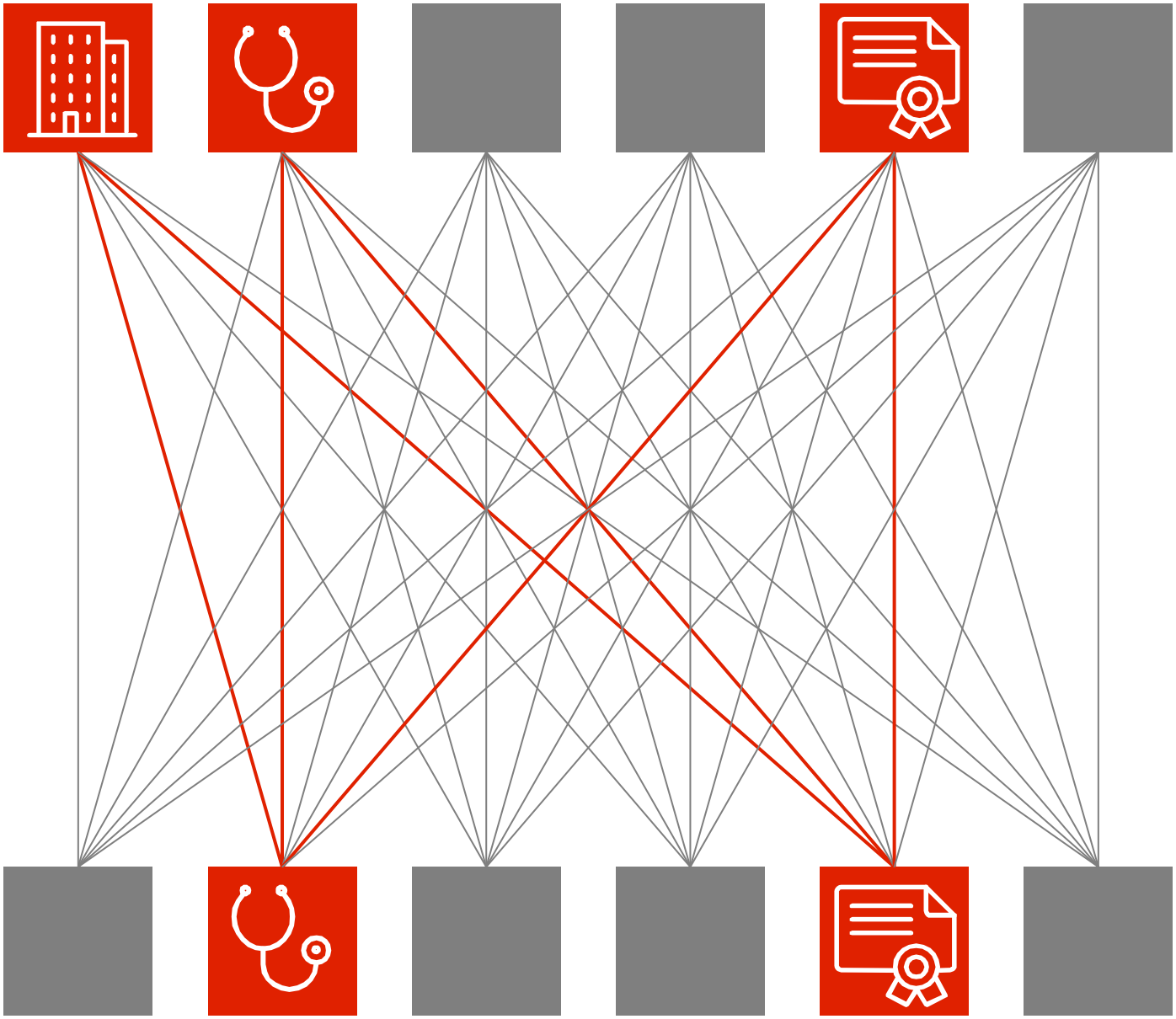


Audience

Producer

clinical

Audience



Budget impact model

England > Trusts > Barking Havering & Redbridge Univ Hosps NHS Trust

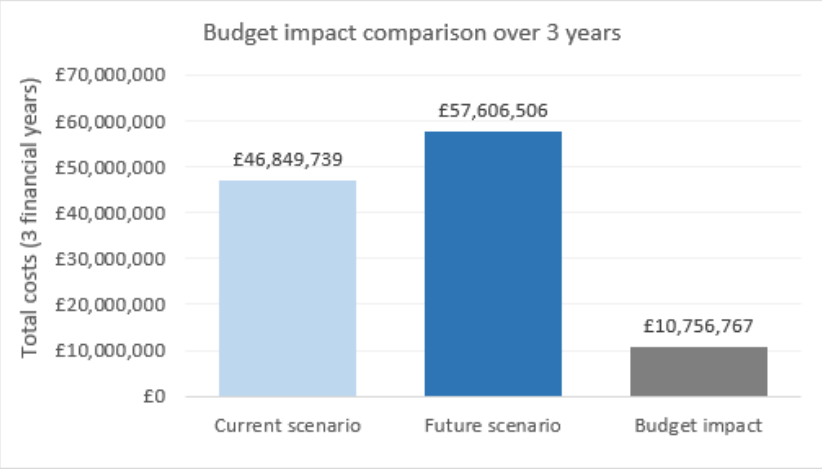
PharmaCo

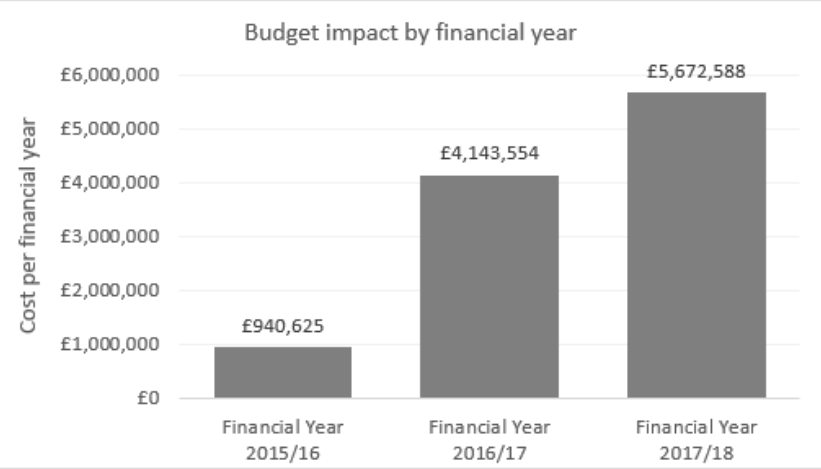
Cover page | Model guidance | Model setup | Inputs and assumptions | Reports

Navigation | Annual summary | Budget impact | Monthly activity

The report below shows the budget impact for financial years from April 2015 to March 2018:

	No. of eligible patients	Patients initiated on ProductA	Testing costs	Current scenario			Future scenario					Impact		
				Existing therapy		Total (including testing)	ProductA		Existing therapy		Total (including testing)	Drug	Delivery	**Total**
				Drug	Delivery		Drug	Delivery	Drug	Delivery				
2015/16 FY	2,223	556	£55,580	£15,561,000	£0	£15,616,580	£2,432,500	£0	£14,069,125	£0	£16,557,205	£940,625	£0	**£940,625**
2016/17 FY	2,223	1,390	£55,580	£15,561,000	£0	£15,616,580	£12,218,229	£0	£7,486,325	£0	£19,760,134	£4,143,554	£0	**£4,143,554**
2017/18 FY	2,223	1,945	£55,580	£15,561,000	£0	£15,616,580	£17,828,438	£0	£3,405,150	£0	£21,289,167	£5,672,588	£0	**£5,672,588**
Total	6,669	3,891	£166,739	£46,683,000	£0	£46,849,739	£32,479,167	£0	£24,960,600	£0	£57,606,506	£10,756,767	£0	**£10,756,767**





Performance Comparison of Running Clinical Rules in Drools and Plain Java Implementation

Jian Shi, MD; Erik Smith; Thomas J. Van Gilder, MD, JD, MPH
Transcend Insights

Abstract

JBoss Drools is an open source rule engine and has been used by health care systems to process clinical rules. This study compares the performance between running the same set of clinical rules with certain complexity in Drools and by hard coding them in Java. The performance of Drools is impressive yet not as good as the plain Java implementation and may be a concern if performance is the critical factor for a successful implementation.

Introduction

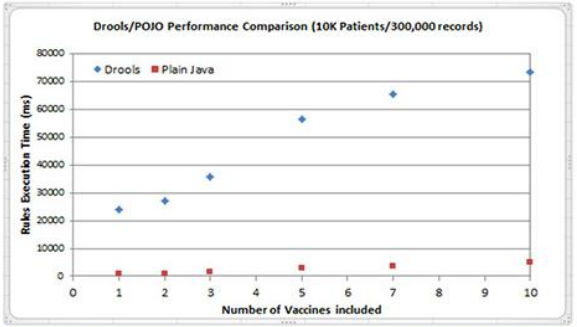
Drools is an open source, Apache Foundation, community-based project that provides an integration platform for the development of knowledge-based systems. It is developed in Java and has a modular architecture which is based on an object oriented implementation of the PHREAK – a lazy rule matching algorithm to enable Drools to handle a larger number of rules and facts[1]. Drools has the following major advantages: Declarative Programming, Logic and Data Separation, Speed and Scalability, Centralization of Knowledge and Understandable Rules. It can also be easily integrated with other open source frameworks such as Spring and Apache Camel, among others[2]. Because of those advantages, Drools has been used in healthcare systems to process clinical rules. It is the core component of OpenCDS[3] which has numerous collaborators like Intermountain Healthcare, Wolters Kluwer Health and others[4]. Compared to rules in other industries, clinical rules tend to have more complicated logic, especially to implement health care quality measures. No study has been found regarding the performance of Drools to process clinical rules.

Methods

Drools version 6 was installed and two other services were implemented to feed the patient data and value set codes to the Drools rule engine. The childhood immunization measure (10 different vaccines which are listed in the table below) from HEDIS was then written in Drools. The eligibility was written in one rule, and the compliance and optional exclusion for each vaccine were written in separate rules. The same rule logic was also hard coded directly in Java. The rules were grouped by each vaccine. The run time was then measured against the number of vaccines that were analyzed on each run. The plain Java implementation shares the same architecture except that the engine component is implemented in plain Java, and reuses the patient data and value set services. Both implementations were run against the same ~10,000 patient claims database with about 300,000 records. The output was then compared.

Table 1

Name of the vaccine	Number of Vaccines prior to 2nd bday for compliance	Compliance rate (percent)
DTaP	4	57
IPV	3	68
MMR	1	89
HiB	3	83
HepB	3	20
VZV	1	89
PCV	4	61
HepA	1	80
RV	2 or 3	57
flu	2	58

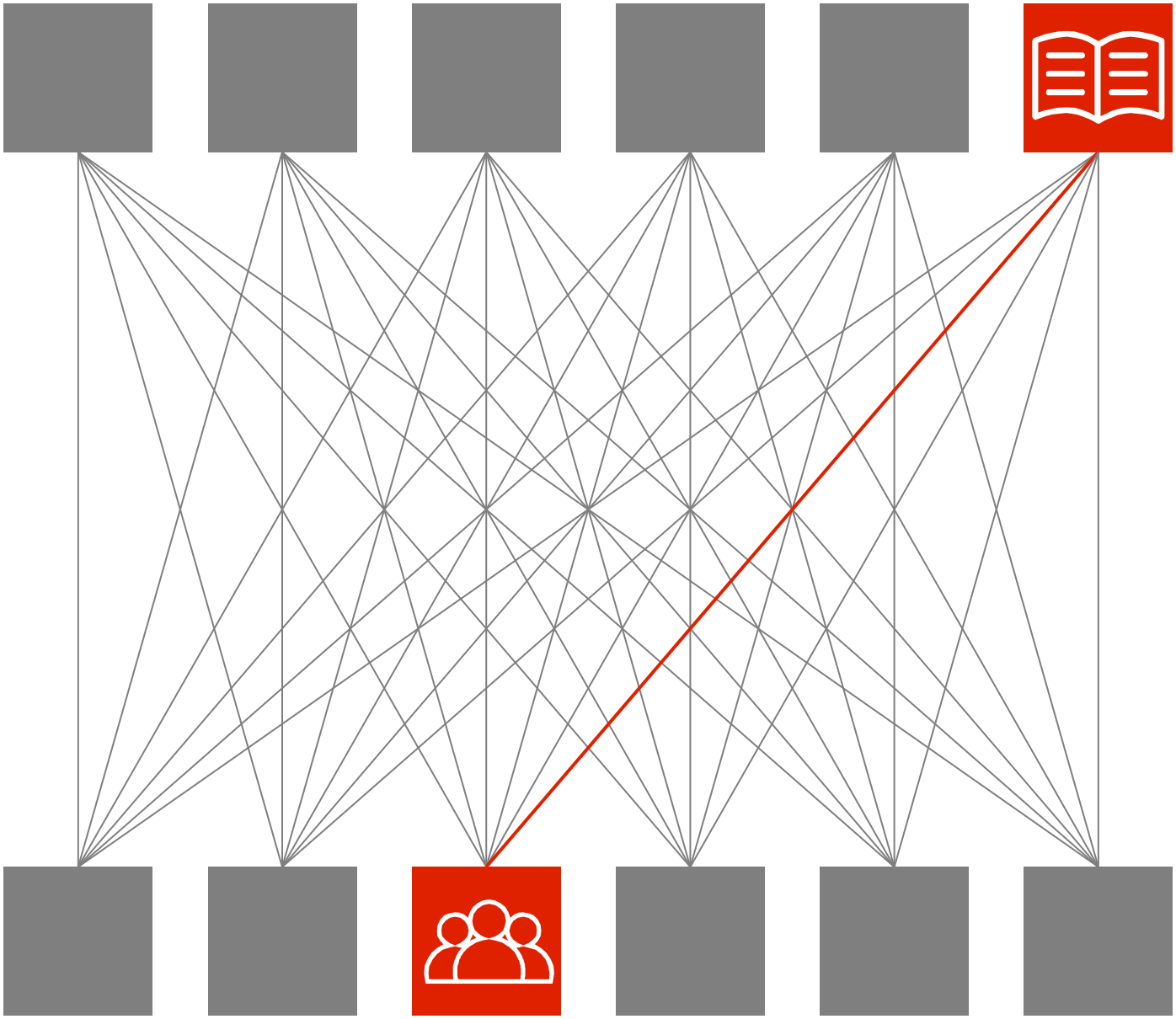


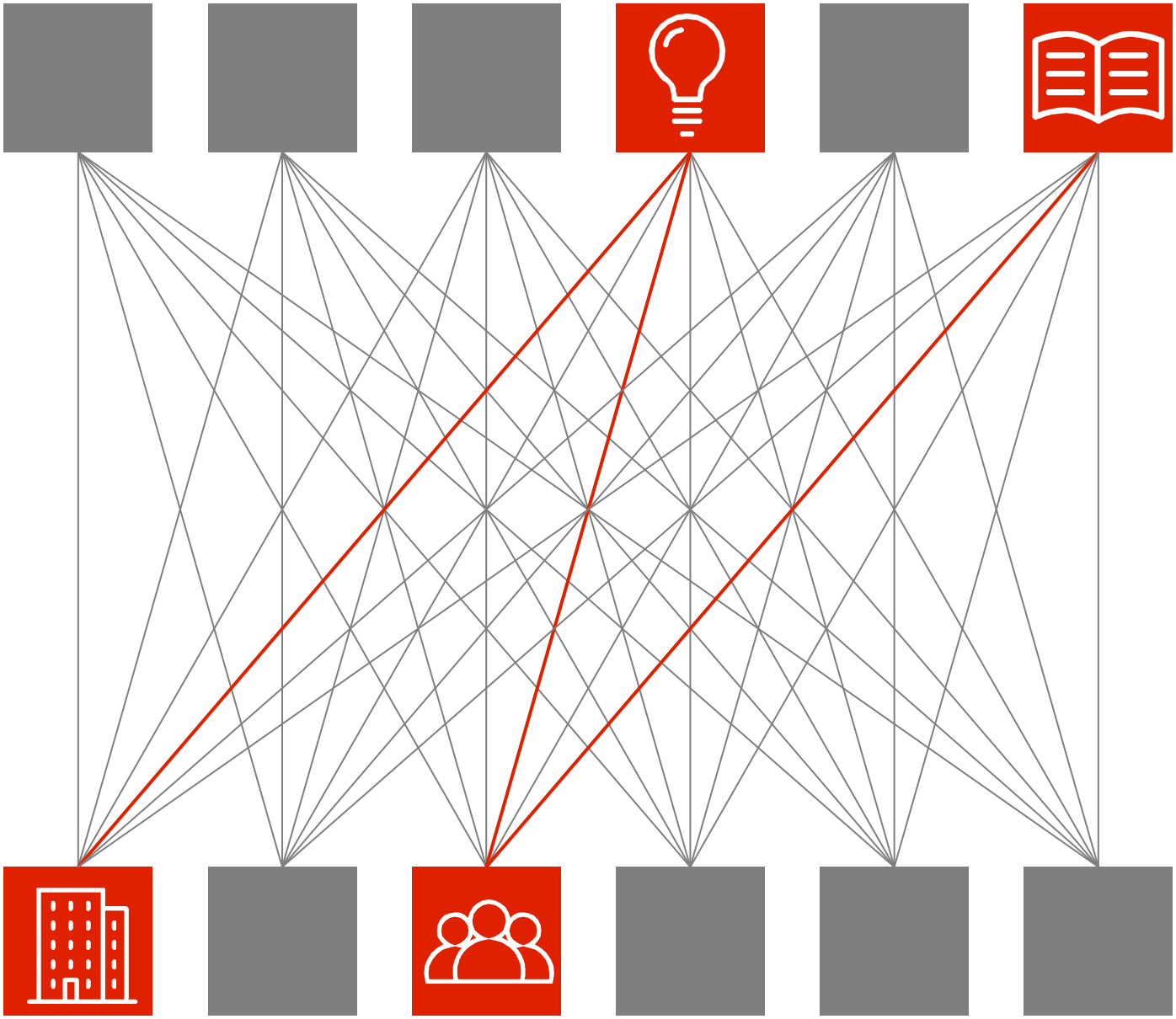
Conclusions

Simple requirements like age range or a look back window can be easily implemented in the Drools DRL file. Any update to those requirements can be done within the rule grammar without making any changes to the engine coding. The rule execution time on clinical rules with certain complexity is impressive, yet it is still longer than the plain Java implementation. For a use case in which continuous updates occur, Drools is a good option to consider. However, if performance (as measured by execution time) is the main metric, it may be worth researching other implementation options.

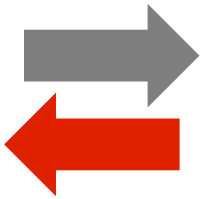
Reference

1. JBoss Drools documentation https://docs.jboss.org/drools/release/6.0.0.Final/drools-docs/html/
2. Why use a rule engine? https://access.redhat.com/documentation/en-US/JBoss_Enterprise_SOA_Platform/4.3/html/JBoss_Rules_Reference_Guide/the_rule_engine-why_use_a_rule_engine.html
3. OpenCDS key component http://www.opencds.org/TheSolution/KeyComponents.aspx
4. OpenCDS featured collaborators http://www.opencds.org/FeaturedCollaborators.aspx



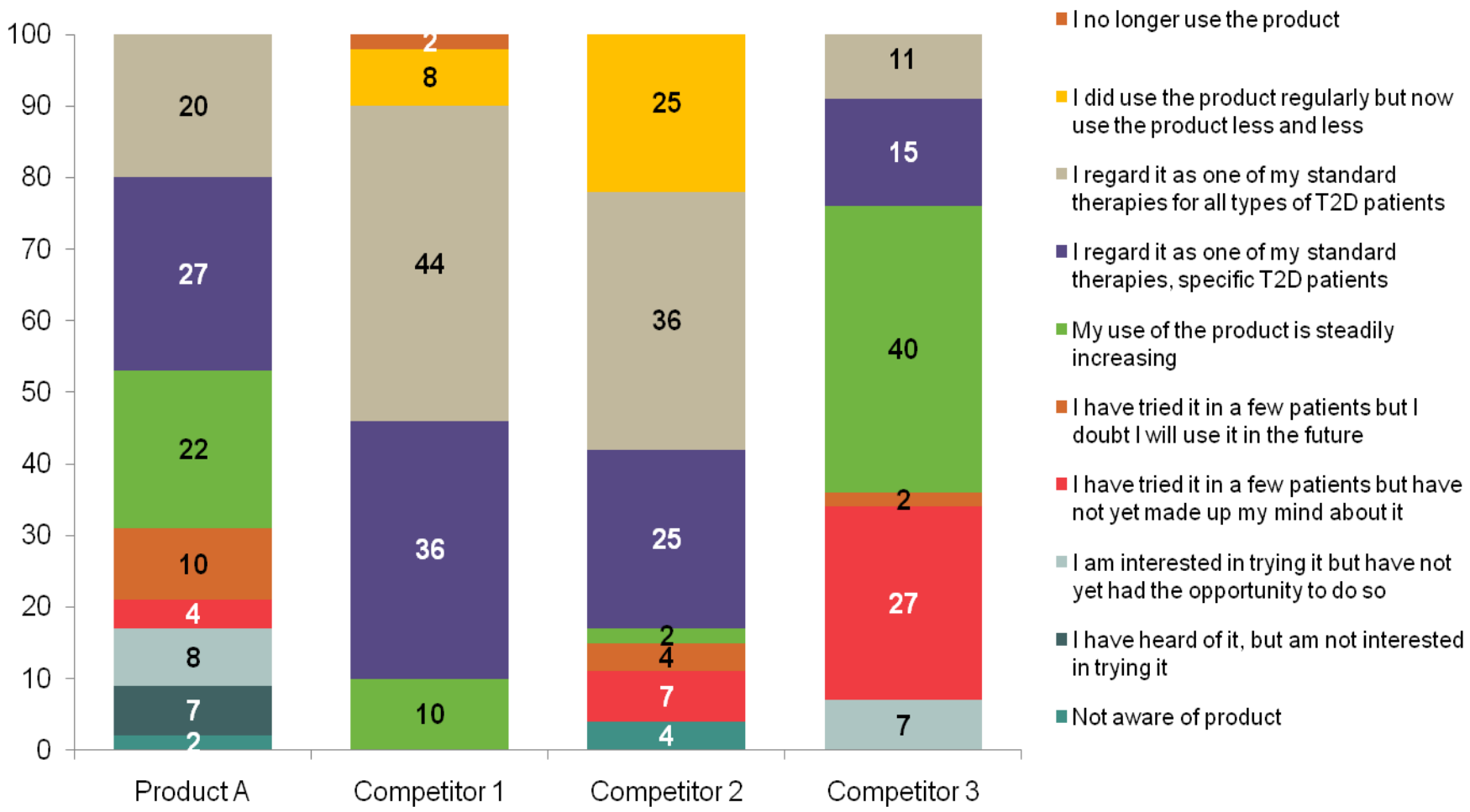


Researchers
Analysts



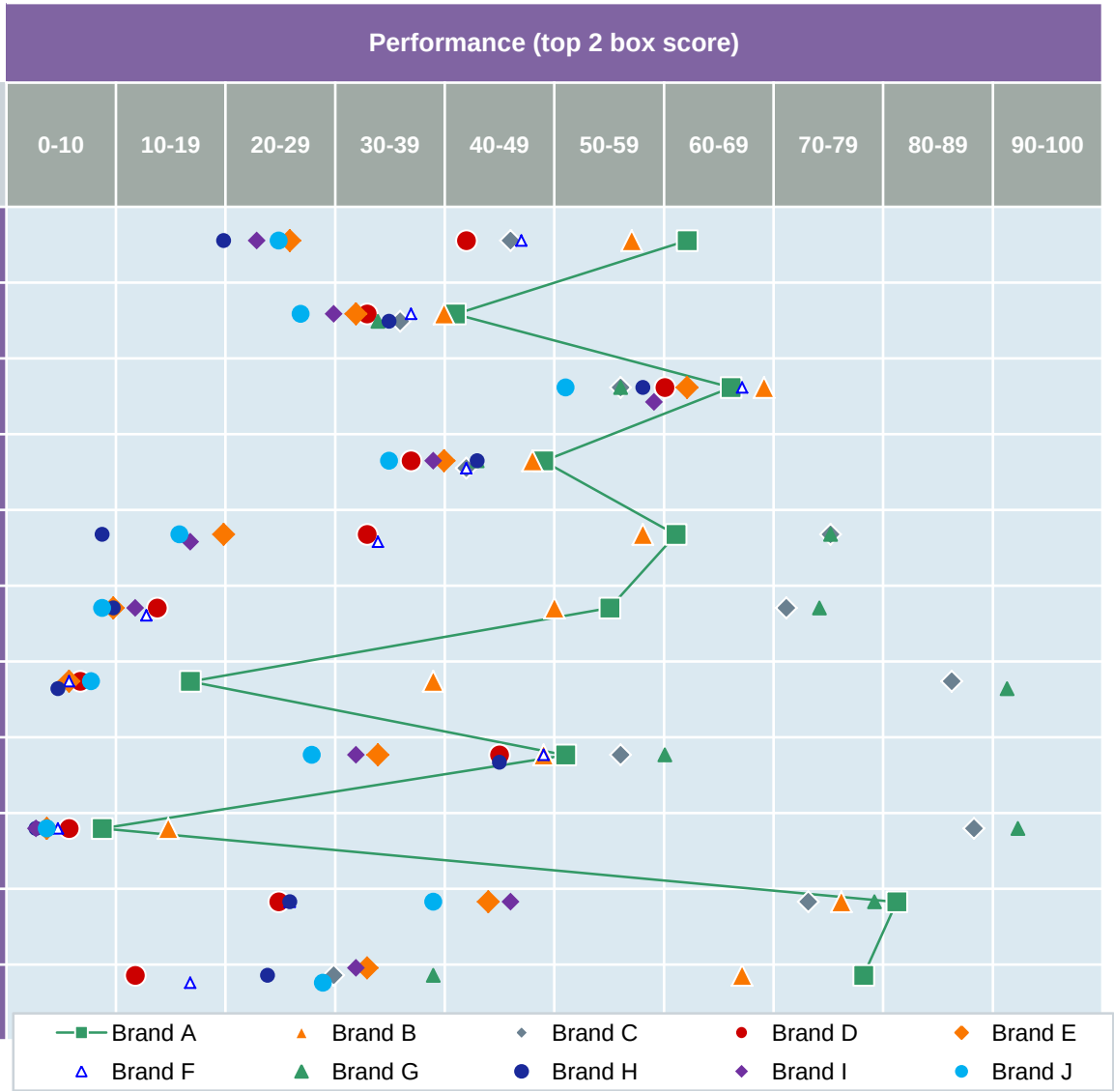
Designers

Integer libero lorem, sollicitudin sed aliquet id, pellentesque in libero. Suspendisse lacinia elementum arcu sed tempus.

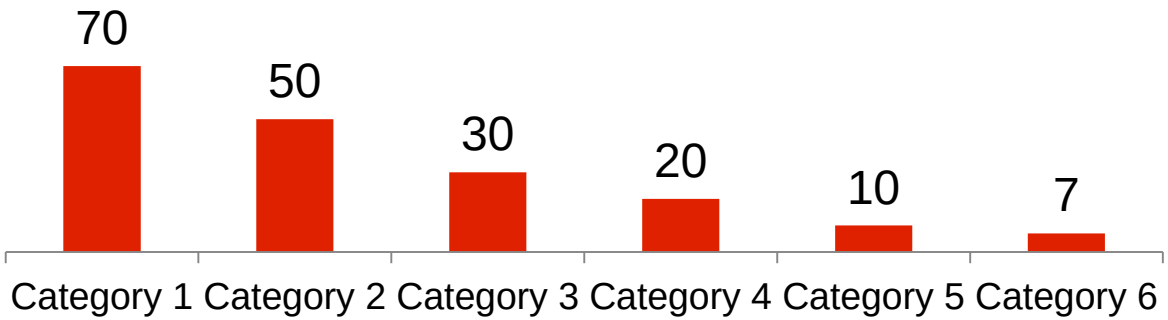


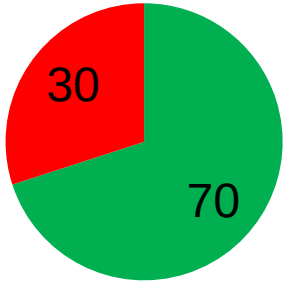
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec nisi augue, viverra pretium dui non, semper pharetra nulla..

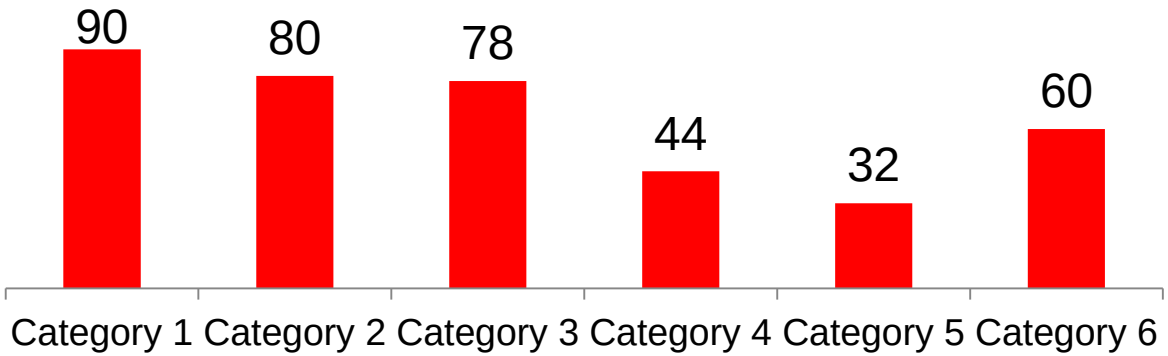
	Attributes ranked by importance	Top 2 box %
1	Attribute 1	95
2	Attribute 2	93
3	Attribute 3	92
4	Attribute 4	92
5	Attribute 5	91
6	Attribute 6	90
7	Attribute 7	90
8	Attribute 8	89
9	Attribute 9	83
10	Attribute 10	80
11	Attribute 11	80

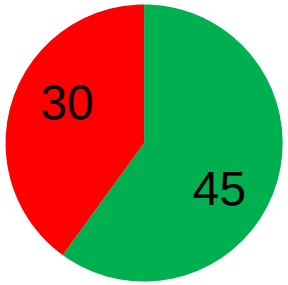


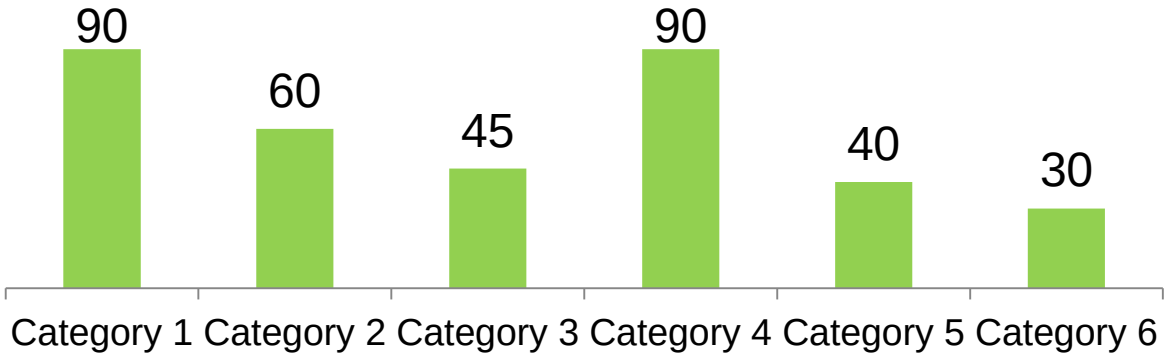
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec nisi augue, viverra pretium dui non, semper pharetra nulla..

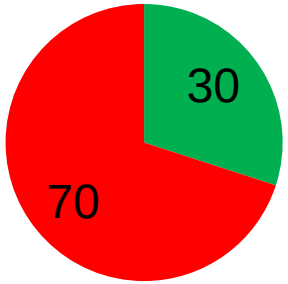




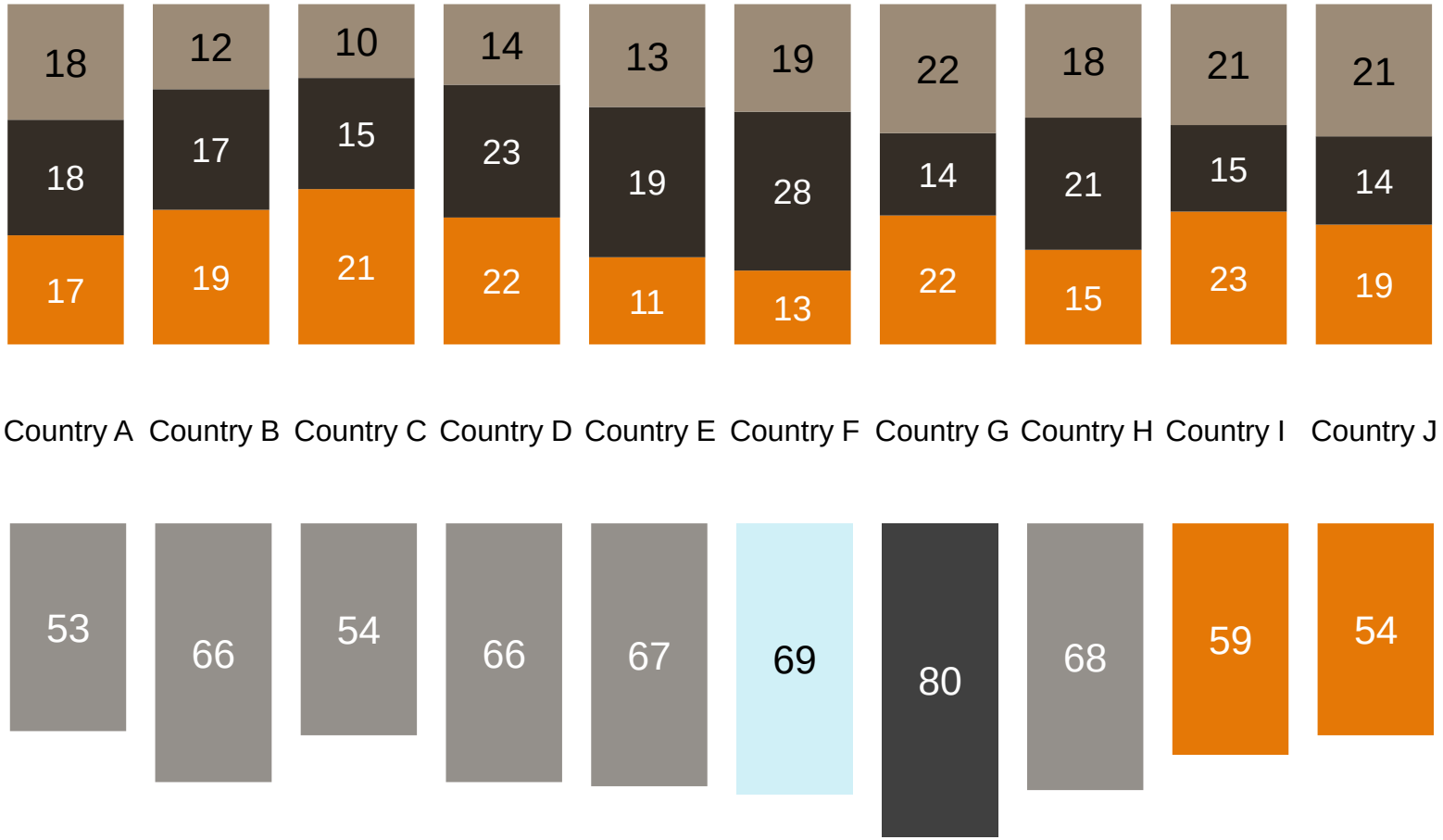


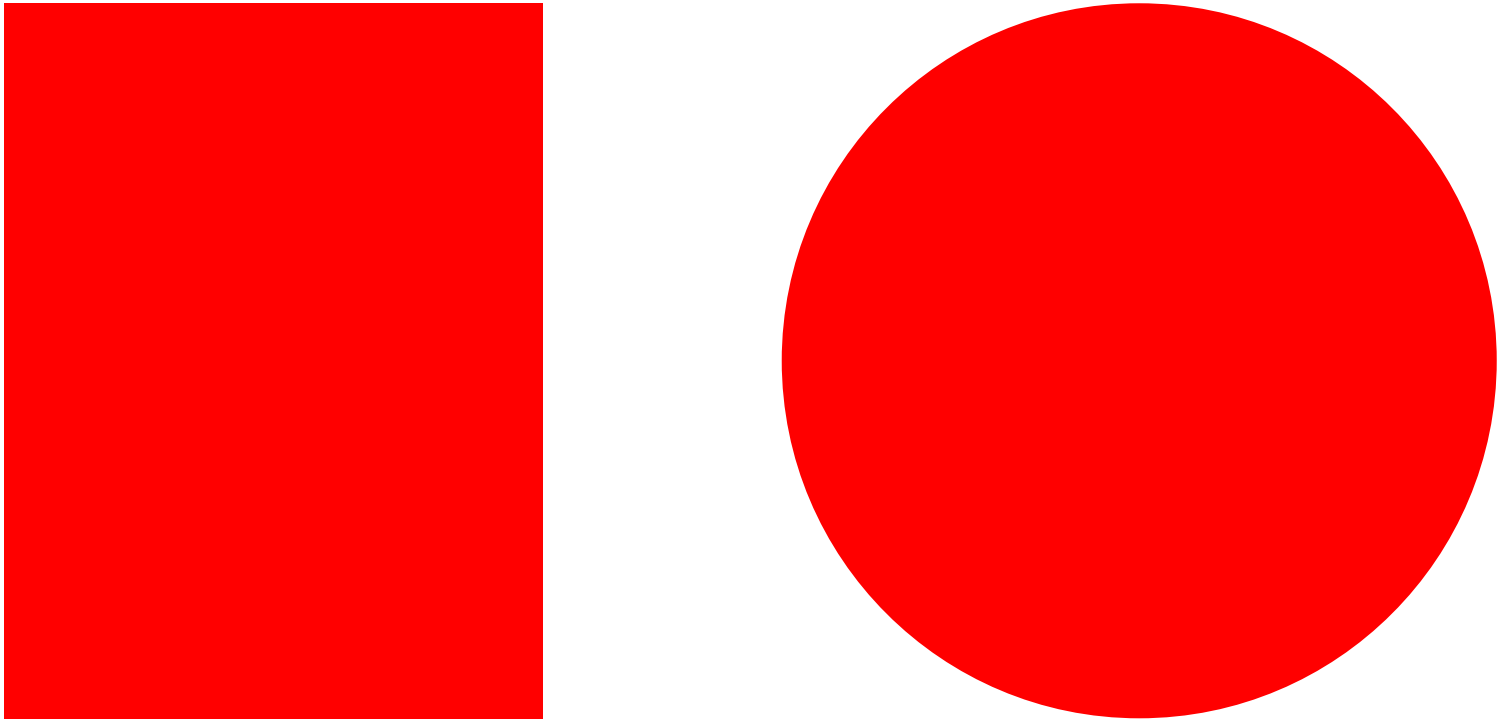






Integer libero lorem, sollicitudin sed aliquet id, pellentesque in libero. Suspendisse lacinia elementum arcu sed tempus.



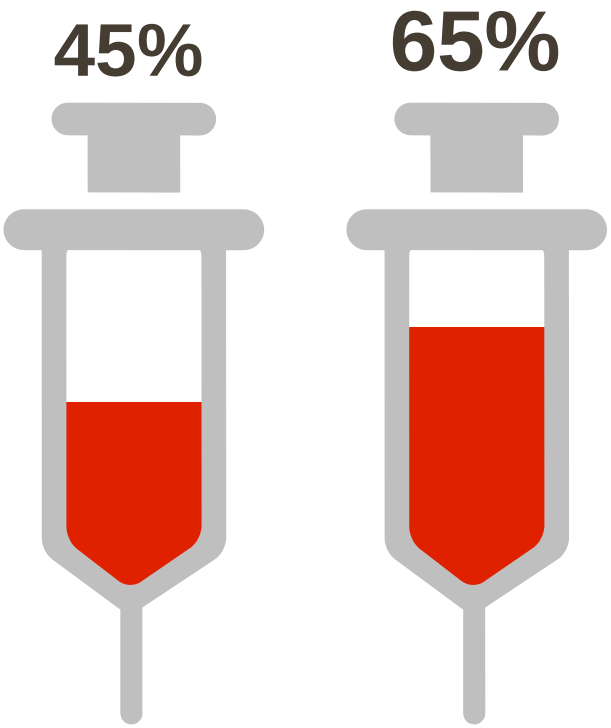


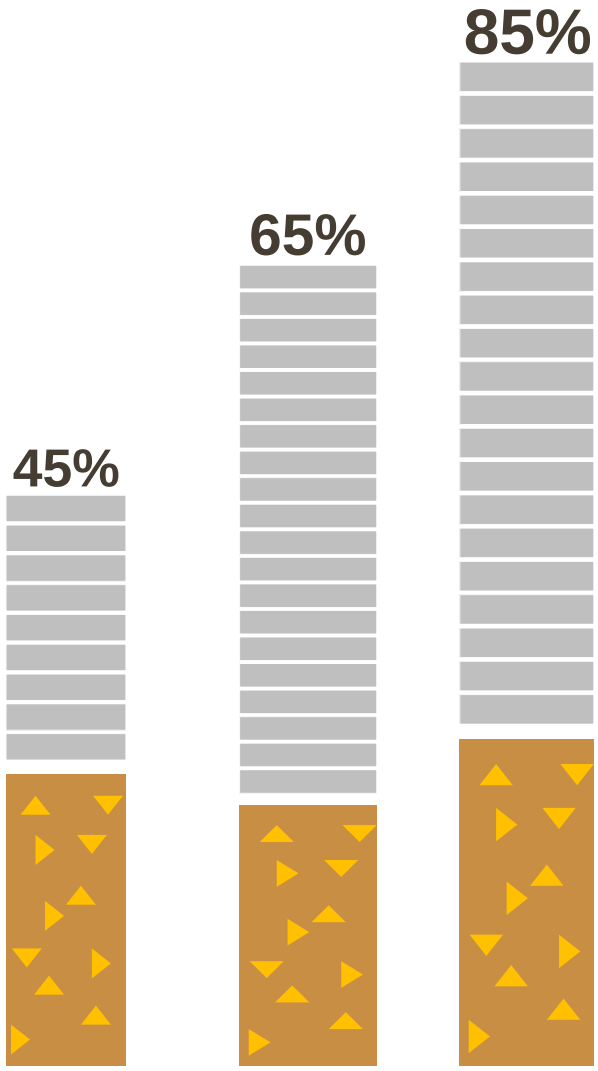
Brand A

60%

Brand B

20%





YELLOW
RGB 255-190-0

255-229-153
255-203-51
188-140-0
128-95-0

RED
RGB 239-51-64

249-173-179
242-92-102
176-38-48
120-23-32

VIOLET
RGB 150-60-189

213-177-229
171-99-202
113-45-139
75-30-95

ORANGE
RGB 255-118-26

255-200-163
255-142-72
188-89-20
128-59-13

PINK
RGB 255-37-191

255-168-229
255-81-204
191-28-143
128-19-96

BLUE
RGB 59-208-242

177-236-250
98-217-245
44-153-179
30-104-121

GREEN
RGB 195-232-33

231-246-166
204-234-77
143-171-25
98-116-17

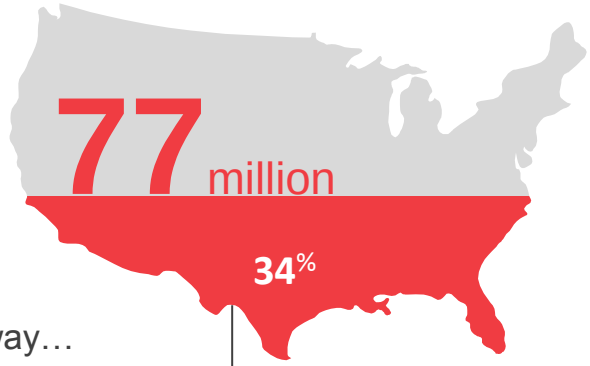
GREY
RGB 132-132-132

206-206-206
163-163-163
99-99-99
66-66-66

Prevalence of pain

USA

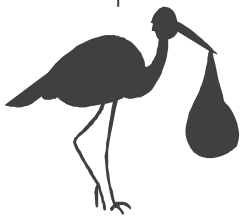
34% prevalence = **77 million**



Or put another way…

77 million is…….

The number of Playstation network breaches reported by Sony in May 2011

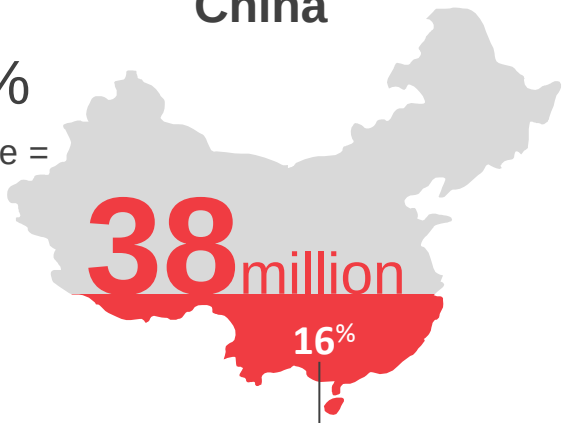


The predicted UK population in 2040

The number of people who's mother tongue is French

Urban China

16% prevalence = **38 million**



38 million is…….

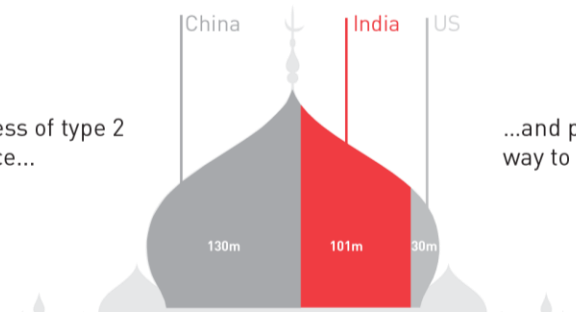
The population of California

The WHO estimated number of people currently living with HIV

The number of people who watched Obama's presidential acceptance speech in 2008

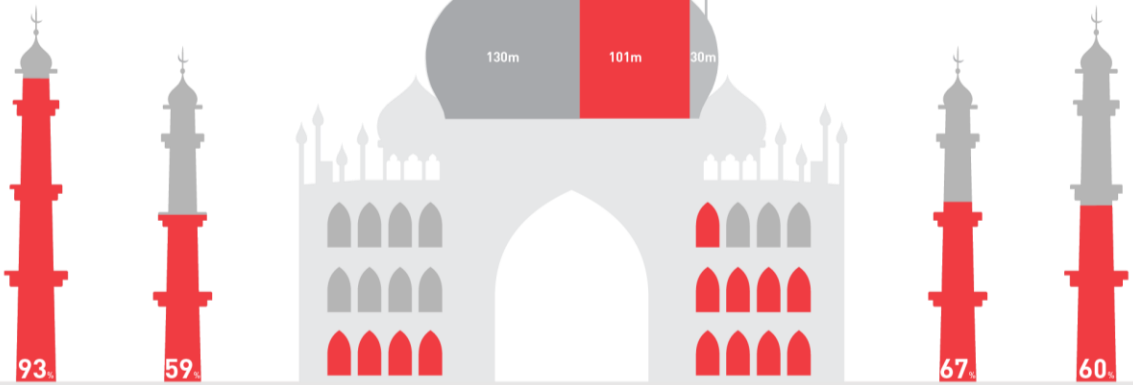
Plagued by accidental diagnosis and lack of patient compliance the diabetes epidemic rages on in India.

India vies with China and the US for diabetes capital of the world (2030 population)[1]



In India, lack of awareness of type 2 diabetes is commonplace...

...and patient education still has a long way to go to stem the epidemic...



93% are not aware of their BMI

59% of patients ranked "high stress" as a primary cause

Only 1 in 3 knew the type of diabetes they have

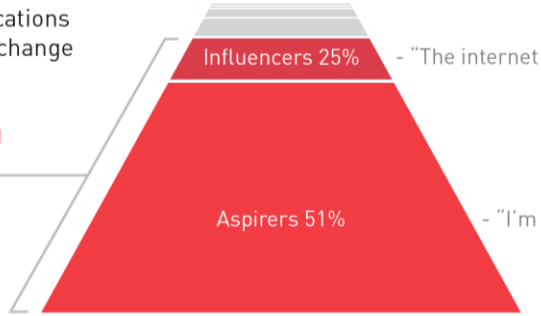
3 in 4 patients have never had an HbA1c test

67% of treated patients regularly miss a dose

60% do not take medication because of their attitude[2]

...and traditional communications methods would do little to change their attitude and behavior.

However, when segmenting patients on the basis of their digital engagement levels, over 75% showed high engagement levels.[2]



Is digital communication the key to type 2 diabetes compliance in India?

General statistics

- Gross national income per capita (Intl $ [1], 2010): **10,920**
- Life expectancy at birth male/female (years): **69/76**
- Total expenditure on health per capita (Intl $, 2009): **934**
- Total expenditure on health as % of GDP (2009): **9.0%**
- Internet penetration: Total population: **39.3%**

Lifestyle statistics

- Total % of adult population that smokes: **20%**
- Total % of adult population that exercises [2]: **52%**
- Total % of adult population that drinks alcohol: **53%**
- Total % of adult population that is obese (BMI ≥ 30): **17%**

Demographics

- Total population: **203,429,773**
- Area size: **8,514,877 km²**
- Total number of doctors: **349,899**
- Total number of beds: **488,231**

Rank	City	% Population
1	Sao Paulo	5.6%
2	Rio de Janeiro	3.1%
3	Salvador	1.3%
4	Brasilia	1.3%
5	Fortaleza	1.2%

[1] The international $ is a currency unit that is calculated using purchasing power parities (PPP), which are rates of currency conversion constructed to account for differences in price level between countries.

[2] At least one day per month of vigorous exercise lasting 20 minutes or more.

General statistics

Gross national income per capita ($, 2010)

10,920

Life expectancy at birth

69
76

Total expenditure on health

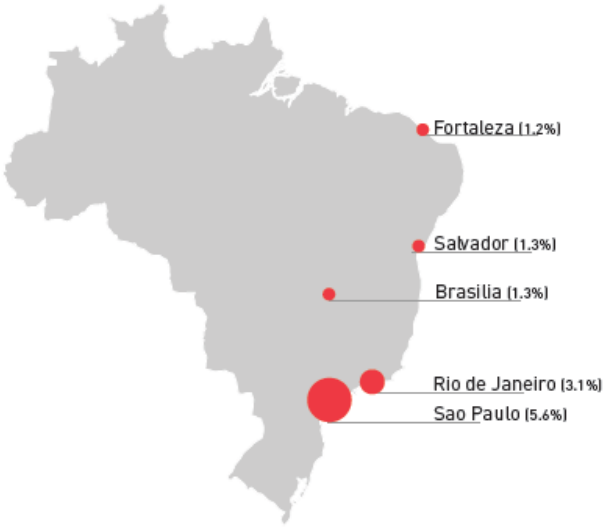
934
$ per capita

9%
% of GDP

Internet penetration: Total population

39.3%

Top 5 city population %



Brazil

Lifestyle statistics

Total % of adult population that...

...smokes

20%

...exercises[2]

52%

...drinks alcohol

53%

...is obese (BMI >= 30)

17%

[2]At least one day per month of vigorous exercise lasting 20 minutes or more

Demographics

Population per km²

23.9

= 10 people

Population per...

GP

581.4

Hospital

1.2m

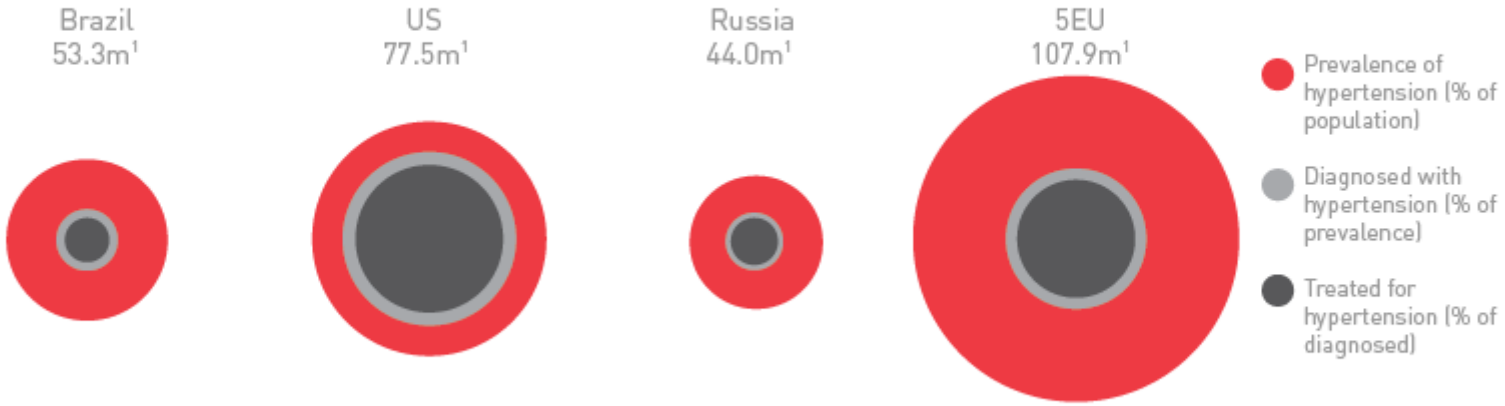
Bed

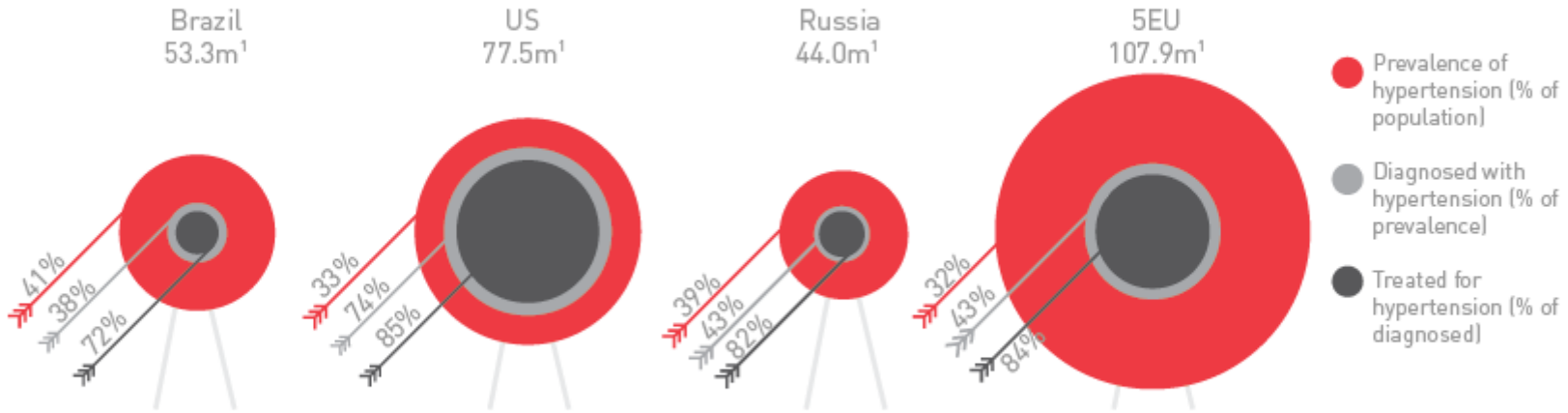
= 50 people

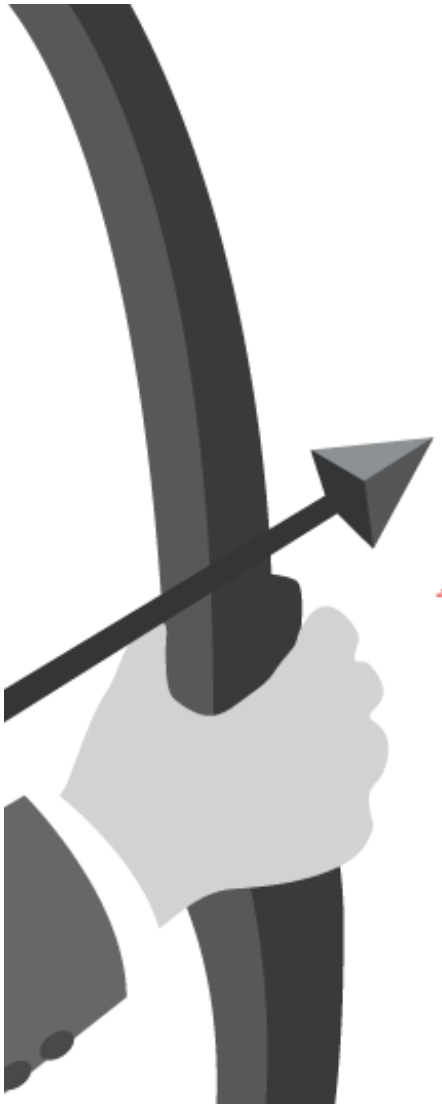
416.7

DRAFT

KANTAR HEALTH

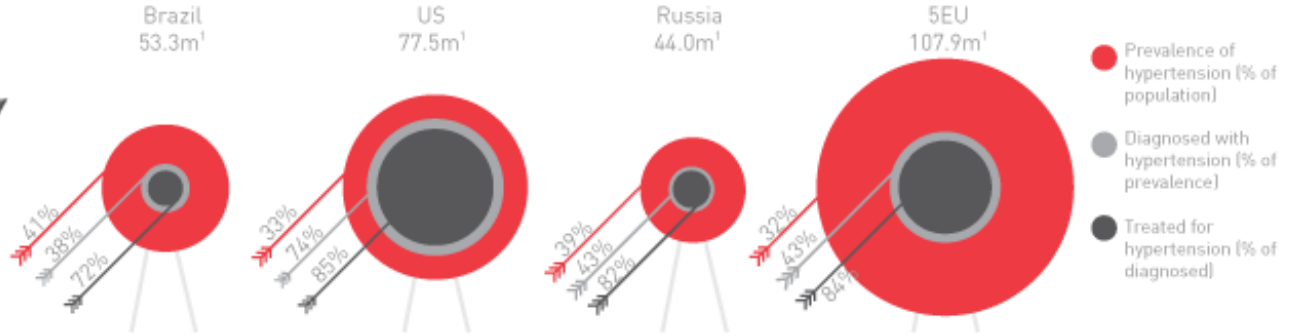

Brazil
53.3m[1]
US
77.5m[1]
Russia
44.0m[1]
5EU
107.9m[1]
Prevalence of hypertension (% of population)
Diagnosed with hypertension (% of prevalence)
Treated for hypertension (% of diagnosed)


Brazil
53.3m[1]
41%
38%
72%
US
77.5m[1]
33%
74%
85%
Russia
44.0m[1]
39%
43%
82%
5EU
107.9m[1]
32%
43%
84%
Prevalence of hypertension (% of population)
Diagnosed with hypertension (% of prevalence)
Treated for hypertension (% of diagnosed)

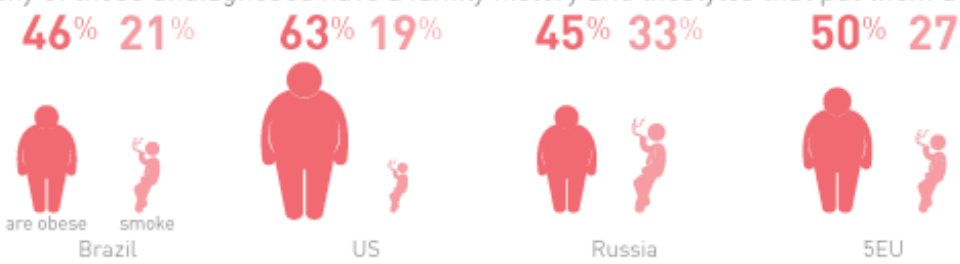


Target: Increasing diagnosis of Hypertension

Hypertension is both preventable and treatable. Because hypertension is largely asymptomatic many people around the world with hypertension are not aware of their condition and therefore remain undiagnosed.



Many of those undiagnosed have a family history and lifestyles that put them at risk.



Driving the diagnosis of at-risk patients reduces the risk of heart attacks, strokes, kidney failure and blindness.

Hepatitis C: The ticking time bomb

130-170 million people are chronically infected with hepatitis C globally

with

3-4 million infected each year.[1]

Of those infected with HCV,

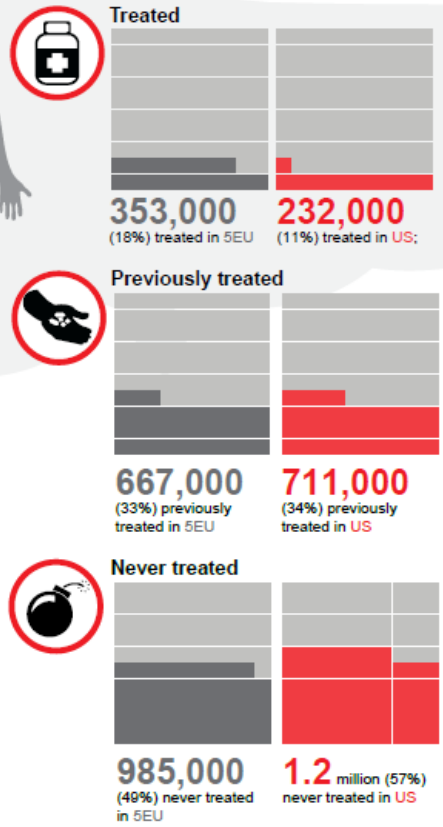
60-70% will develop chronic liver disease

5-20% will develop cirrhosis

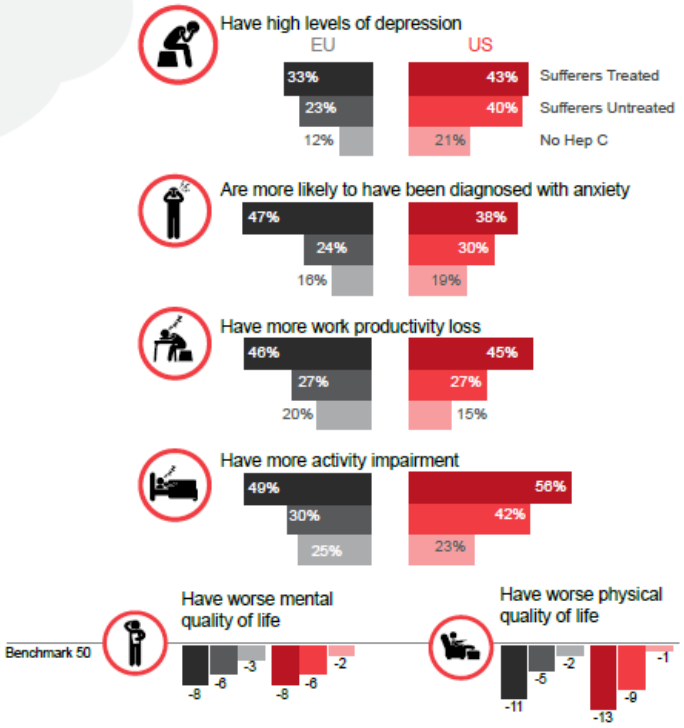
and

1-5% will die from cirrhosis or liver cancer.[2]

Despite the effects of hepatitis C on their health, few patients are treated:



The burden placed on hepatitis C patients is enormous, and they are generally in poorer health overall compared with non-sufferers. The side effects caused by current treatments place an even larger burden on these patients. Hepatitis C patients[3]:



New hepatitis C treatments with fewer side effects are needed to improve patients' quality of life.

[1] WHO "Hepatitis C Fact sheet No 164," June 2011. Accessed 10/20/11.
[2] CDC "Hepatitis C FAQs for Health Professionals," 4 Aug 2011. Access 12/20/11.
[3] Kantar Health. National Health and Wellness Survey, 2011 [US, EU]. Princeton, NJ.

USA Diabetes Alert Day - A wake up call asking Americans to take the diabetes risk test

25.8 million people or 8.3% of the US population have diabetes

66% of those diagnosed with diabetes are under 65 years of age

63% of diabetic patients in the US have concomittant high cholesterol

61% of diabetic patients in the US have concomittant high blood pressure

80% of diabetic patients in the US are treated with prescription medicine

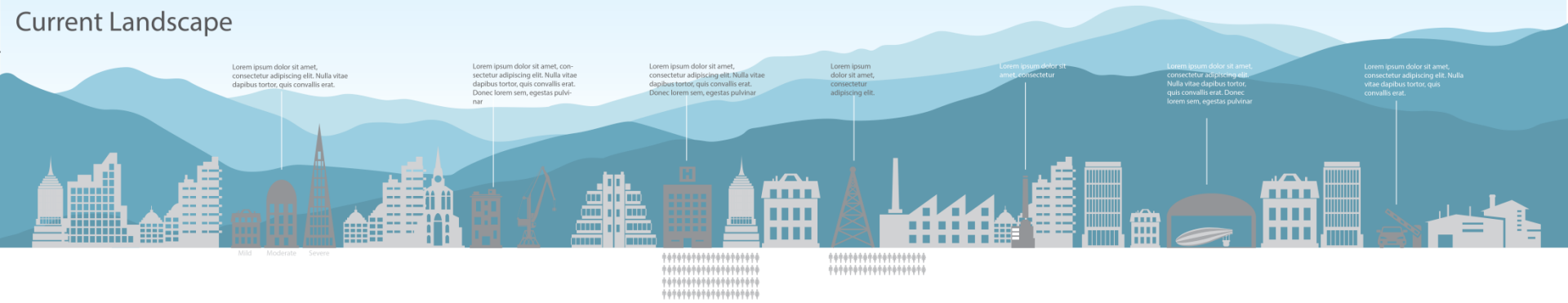
79 million, or one in three American adults, have prediabetes

Total costs of diagnosed diabetes in the US in 2007 : $174 Billion

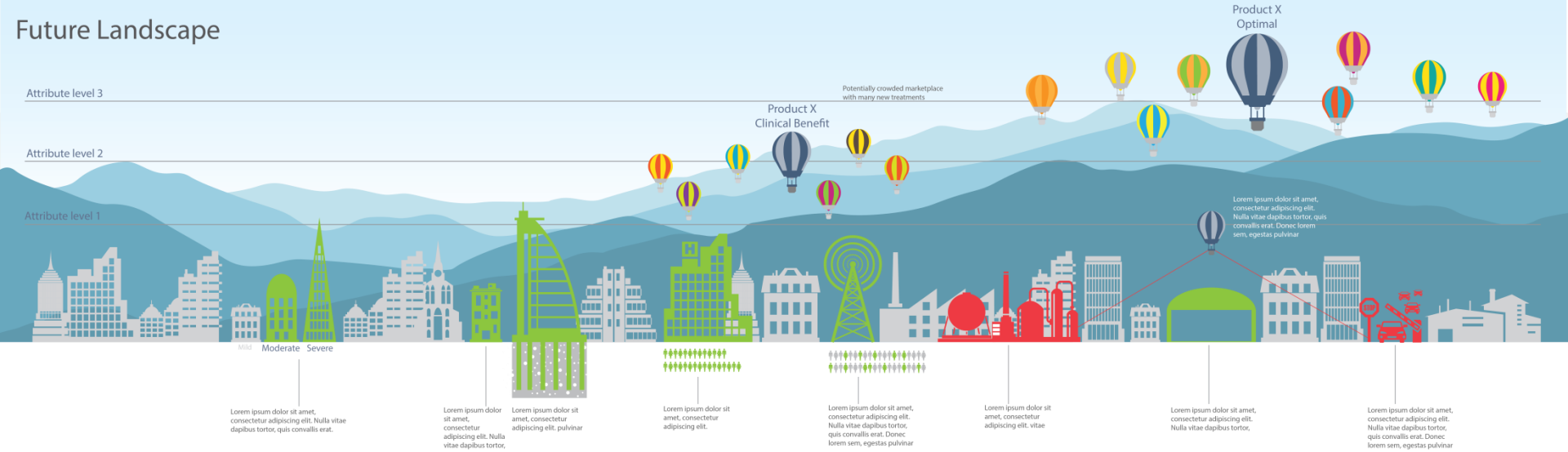
Product X in Therapy Area Y - A Changing Landscape

KANTAR HEALTH

Current Landscape



Future Landscape



KANTOPOLY
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Email: daniel.blake@kantarhealth.com
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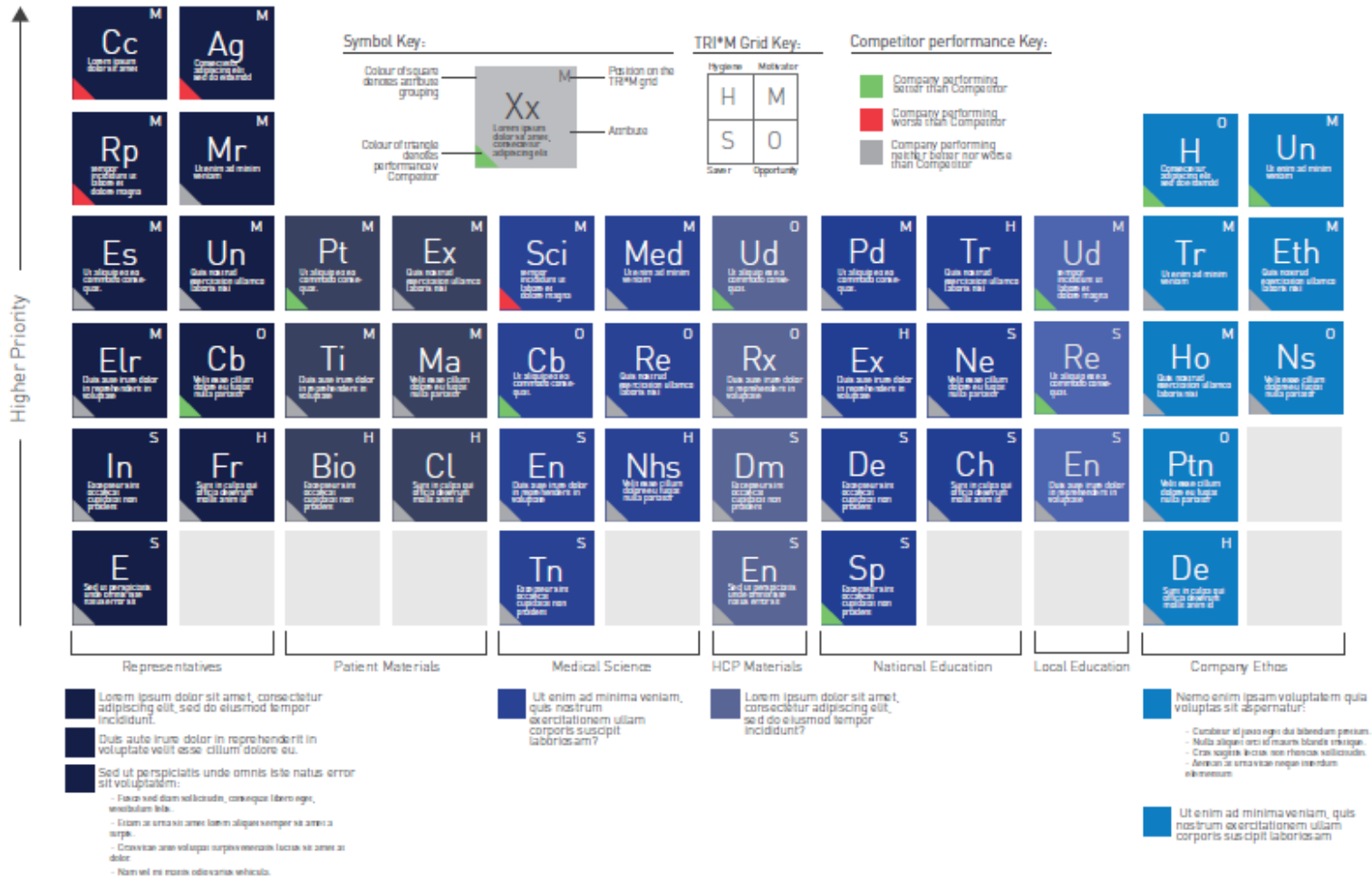
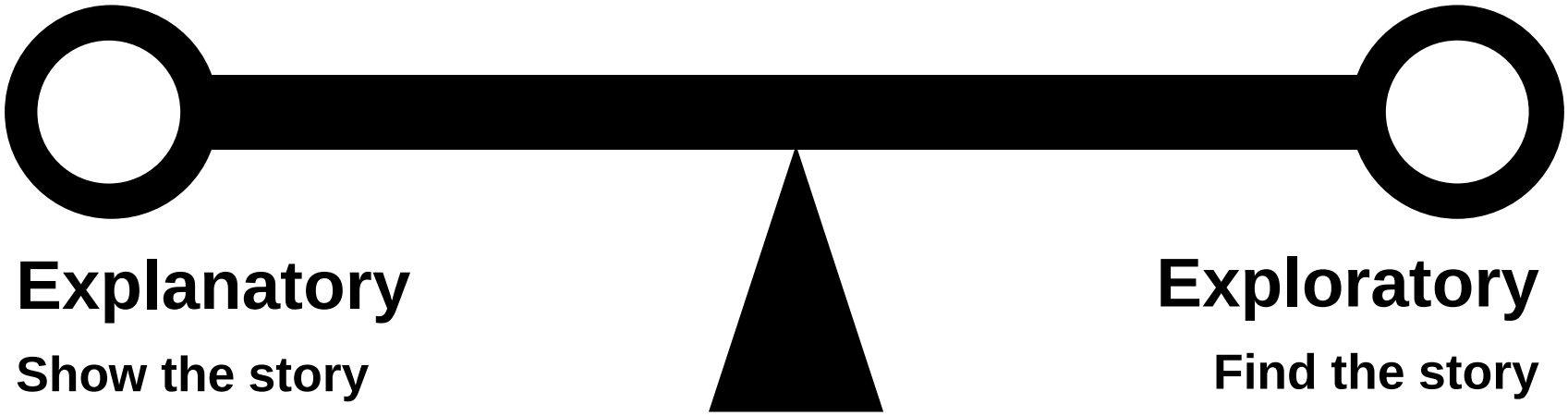
KANTAR-HEALTH
Amy Ramsay
Divisional Director
Telephone: + 44 1372 829873
Email: amy.ramsay@kantarhealth.com
THEME
KEY RESEARCH FINDING
ACTION TO BE TAKEN
GO
DUIS AUTE IRURE
INCIDIDUNT UT LABORE ET DOLORE MAGNA ALIQUA. UT ENIM AD
CHANCE
LOREM IPSUM DOLOR SIT AMET, CONSECTETUR ADIPISICING ELIT, SED DO EIUSMOD TEMPOR
EPSOM STATION
CULPA QUI
ANIM ID EST LABORUM
CONTACT DETAILS
EX EA COMMODO CONSEQUAT. DUIS AUTE IRURE DOLOR IN REPREHENDERIT IN VOLUPTATE VELIT
JUST VISITING
VISITING
GO TO STATION OFFICE
QUO MINUS ID QUOD MAXIME PLACEAT FACERE POSSIMUS, OMNIS VOLUPTAS ASSUMENDA EST, OMNIS DOLOR
TEMPORE, CUM SOLUTA NOBIS EST ELIGENDI OPTIO CUMQUE NIHIL IMPEDIT
CONTACT DETAILS
NAM LIBERO
LONDON BRIDGE STATION
ID EST LABORUM ET DOLORUM FUGA. ET HARUM QUIDEM RERUM FACILIS EST ET EXPEDITA DISTINCTIO
CHANCE
CUPIDITATE NON PROVIDENT, SIMILIQUE SUNT IN CULPA QUI OFFICIA DESERUNT
MOLLITIA ANIMI
FREE PARKING
UT ET VOLUPTATES REPUDIANDAE SINT ET MOLESTIAE
CHANCE
TEMPORIBUS AUTEM AUT OFFICIIS DEBITIS AUT RERUM NECESSITATIBUS SAEPE EVENIET
REPELLENDUS
MORE LONDON STATION
CUPIDITATE NON PROVIDENT SIMILIQUE SUNT IN CULPA QUI OFFICIA DESERUNT
EX EA COMMODO CONSEQUAT. DUIS AUTE IRURE DOLOR IN REPREHENDERIT IN VOLUPTATE VELIT
CONTACT DETAILS
ANIM ID ES LABORUM
GO TO STATION OFFICE
CORRUPTI QUOS
DUIS AUTE IRURE DOLOR
CONTACT DETAILS
MOLLITIA ANIMI, ID EST LABORUM ET DOLORUM FUGA. ET HARUM QUIDEM RERUM FACILIS EST ET EXPEDITA DISTINCTIO
EPSOM DOWNS STATION
CUPIDATAT NON PROIDENT
DOLORE EU FUGIAT NULLA PARIATUR. EXCEPTEUR SINT OCCAECAT
THOUGHT! CLARITY! ACTION...
DOLOR IN REPREHENDERIT IN VOLUPTATE VELIT ESSE CILLUM
DUIS AUTE IRURE DOLOR REPREHENDERIT IN VOLUPTATE VELIT ESSE CILLUM DOLORE EU FUGIAT
CONTACT DETAILS

A Periodic Table of Customer Satisfaction





Explanatory

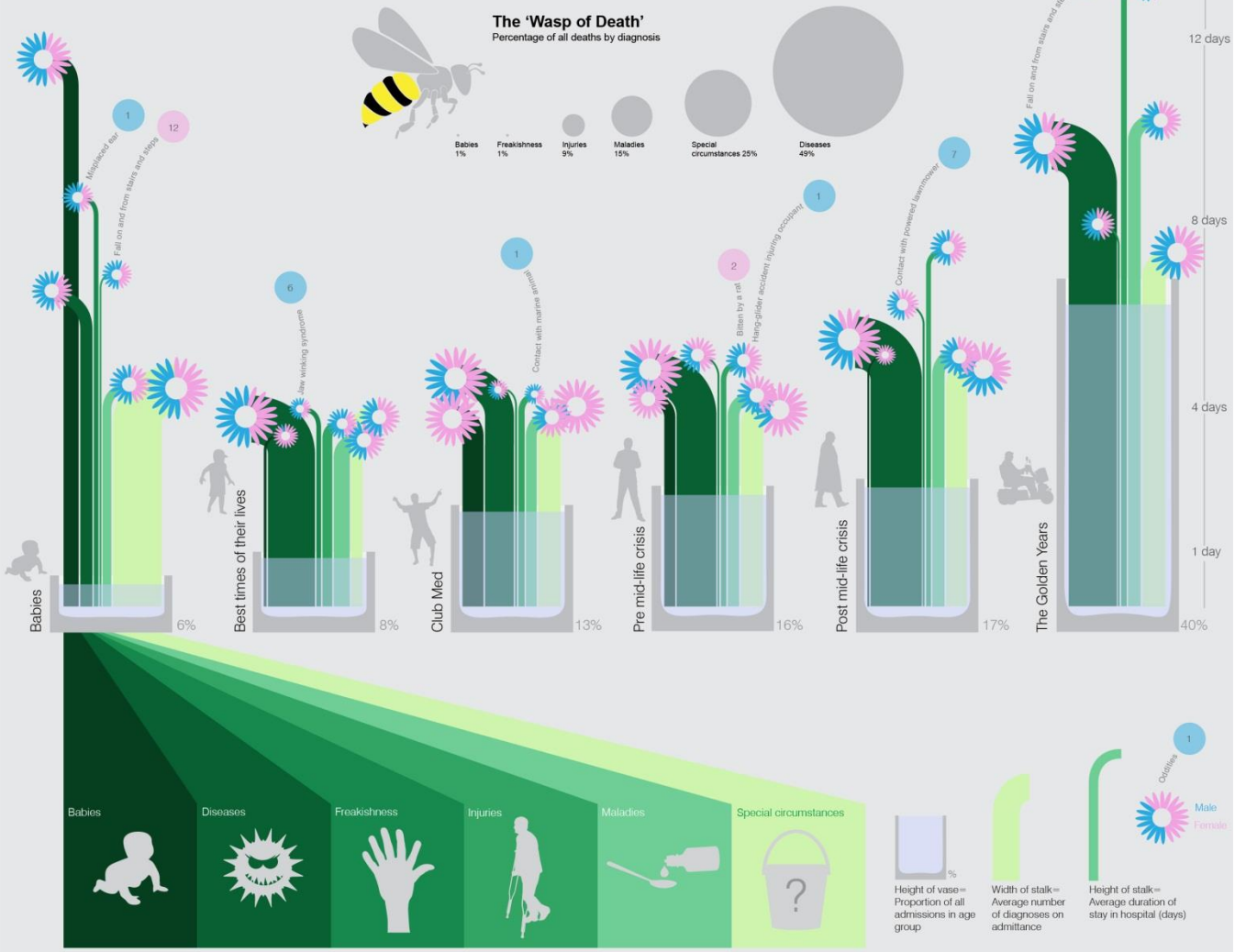
Show the story

Exploratory

Find the story

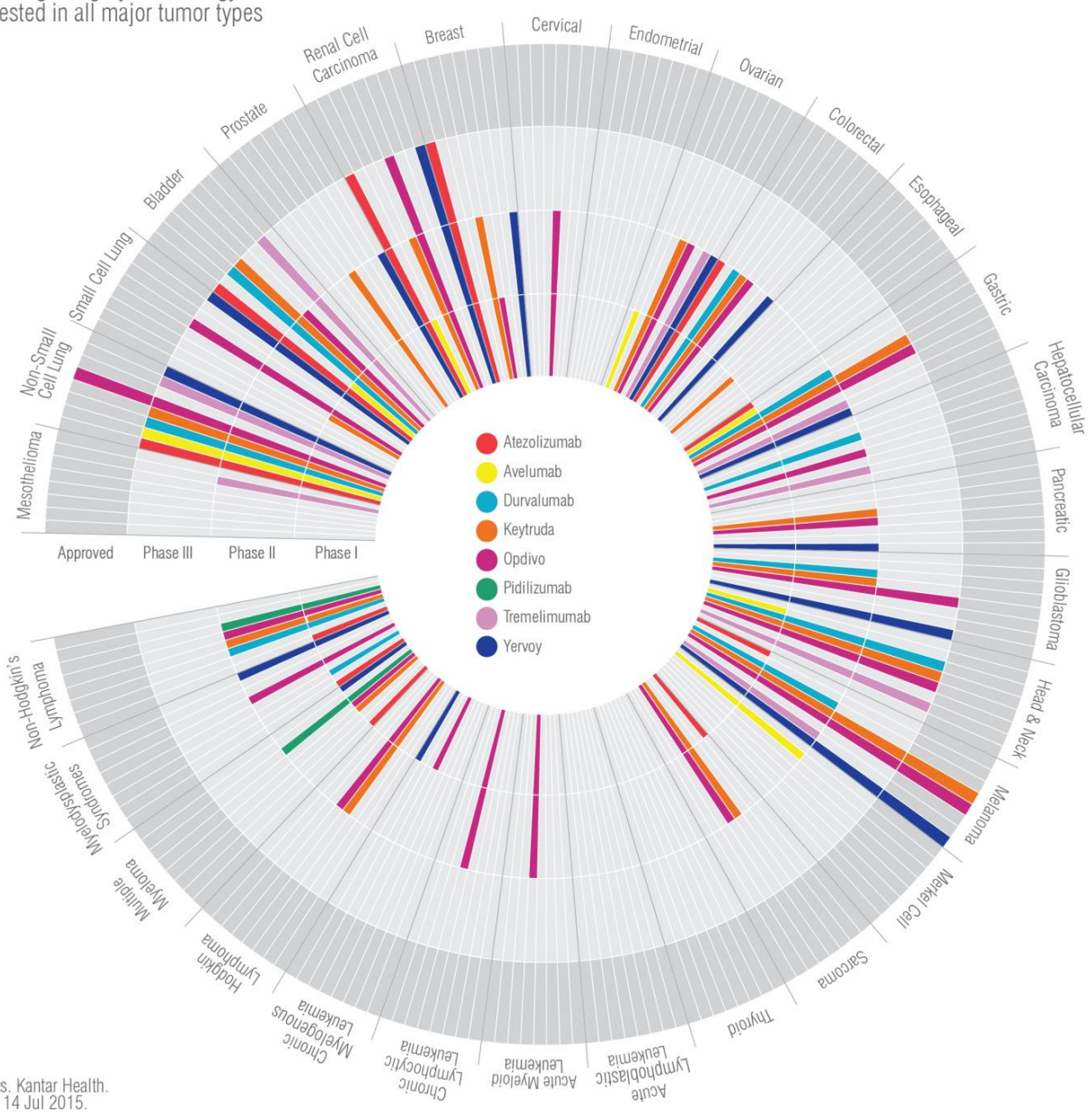
Get well soon

What puts us in hospital, how long we stay there, and when?



NHS Inpatient Hospital Admissions for England March 2009

Immunotherapy continues to be a growing category in oncology treatment, and treatments are being tested in all major tumor types



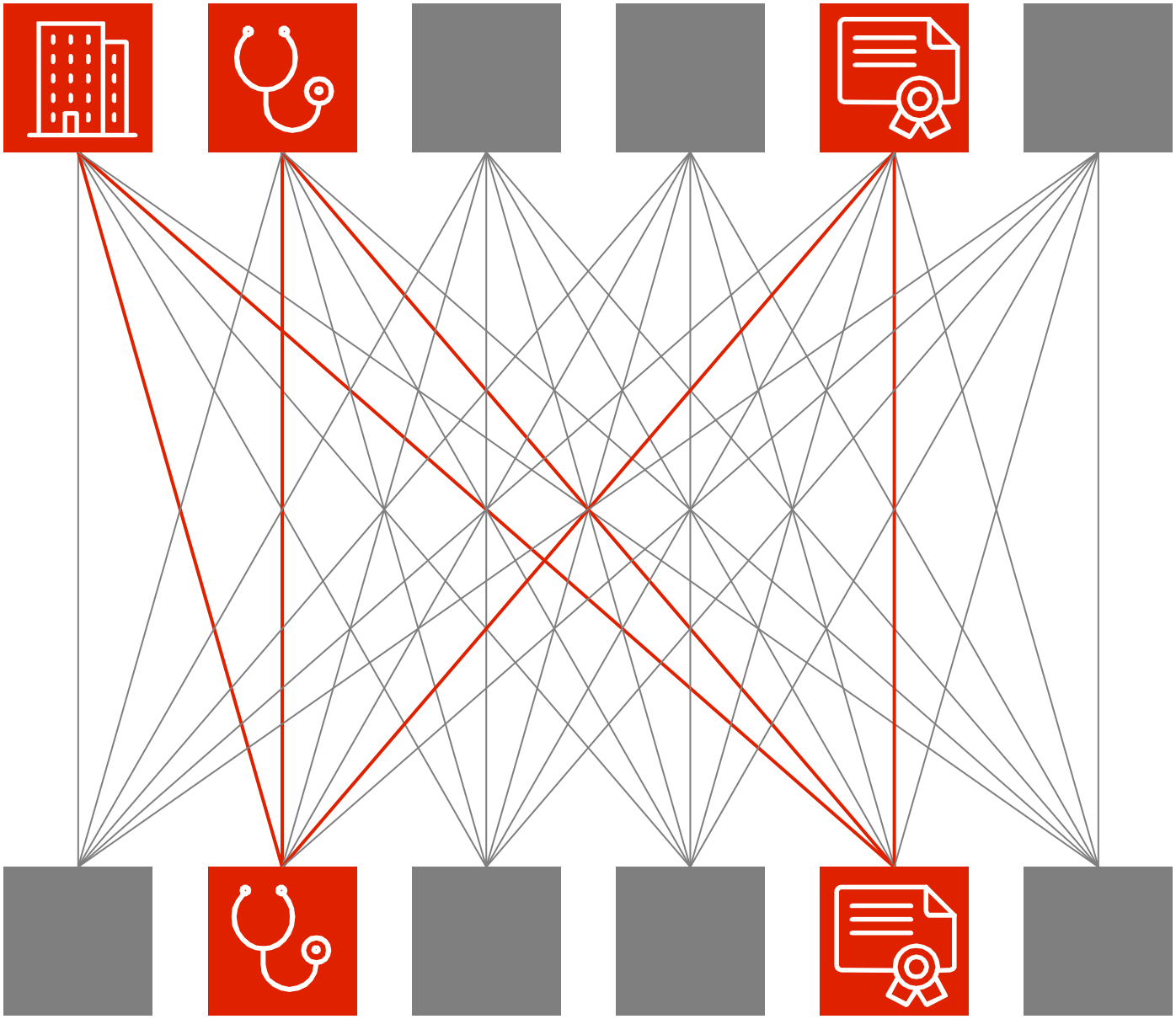
Source: CancerMPact® Future Trends and Insights. Kantar Health. Available from www.cancermpact.com. Accessed 14 Jul 2015.

People like to play with things!

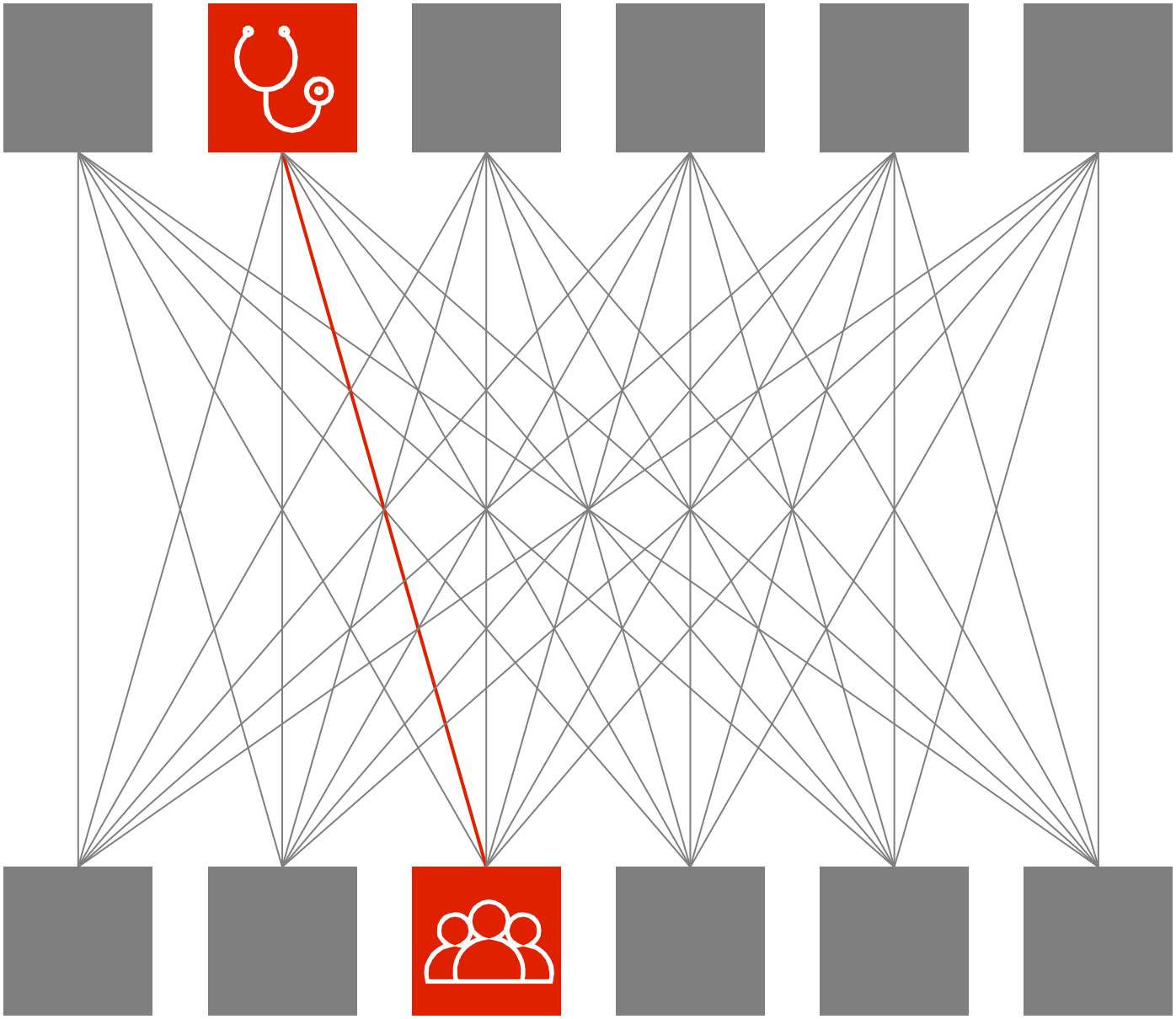
Producer

clinical

Audience



Producer



Audience

GARRY	H7551927 Male Age: 53	Select New Patient	Health Links	Medcon	Help	Email Feedback	L a

Demographics	Problems	Medications	Allergies	Providers	Lab	Visits	Transcripts	Radiology	Pat
Reminders	Immuniz	Procedures	Findings	Summarize	MDS				

Healthlinks Lab Resources

Lab data from 30-Mar-2001 through 29-Jun-2001
User-Selected Subset Of Lab Tests

Full List	Micro List	Flowsheets	Specific Tests/Panels	Specific Dates	External Transplant Listi

View Graph (wait until page has fully loaded)

Go to the full panel/test listing using same date range

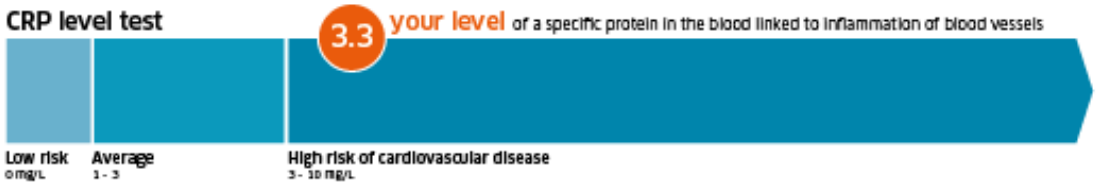
ref. lib.	Test Name	24-may-2001 08:41
	Cholesterol (Total)	166mg/dL
	Triglycerides	155 mg/dL
	Cholesterol (HDL)	48 mg/dL
	Cholesterol (LDL)	62 mg/dL
	Cholesterol/HDL Ratio	
	Patient Fasting Status (Y/NO)	Yes
* means outside reference range		

1 About this test

This report evaluates your potential risk of heart disease, heart attack, and stroke.

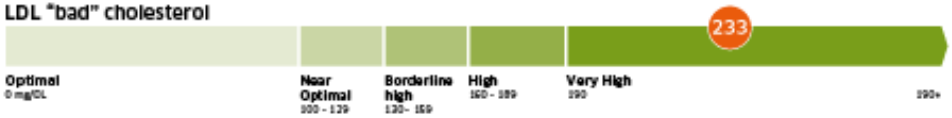
2 Your results

CRP level test



Total cholesterol level

LDL "bad" cholesterol



HDL "good" cholesterol

CLINICAL TRIALS EXPLAINED

CLINICAL TRIALS – A CRUCIAL LINK IN THE RESEARCH AND DEVELOPMENT (R&D) CHAIN

What is a Clinical Trial?

- Clinical trials are research studies of medicines in humans

- They assess whether a potential new medicine is safe for patients and effective in treating the target disease.
- A clinical trial study can be funded by academics, government or industry and are conducted by investigators.

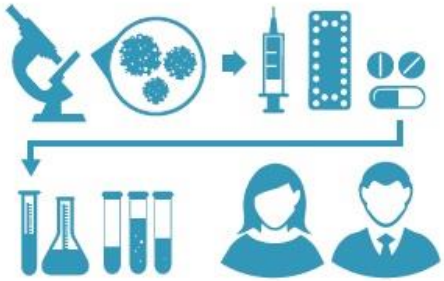
- The clinical trial participant eligibility criteria are specifically defined on a trial by trial basis. A research plan called a clinical trials protocol is designed to answer specific research questions and safeguard the health of the participants.

13 YEARS	2 YEARS	6 MONTHS – 2 YEARS	ONGOING

START ▸▸ ▸▸ END

Getting started

Scientists begin by analysing the disease and investigating a possible treatment. Preclinical trials then establish initial safety and effectiveness before testing on humans. These tests are often done in the laboratory, using 'in vitro' (test tube) research.



CLINICAL TRIALS

CHECK FOR SAFETY

Phase I investigate the molecule's safety and research how it works and behaves in the human body

Population 20 - 80 healthy volunteers

Timeline between weeks and months

CHECK FOR EFFICACY; CONTINUE SAFETY EVALUATION

Phase II investigate efficacy; investigate side effects and risks

Population several hundred people who have the disease

Timeline between several months & several years

CONFIRM RESULTS

Phase III seeks to establish the benefit-risk, the right patients and the best way to manage the risks.

Population several thousand people who have the disease

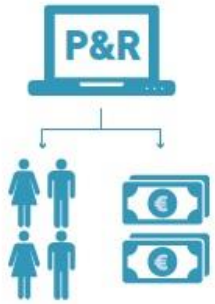
Timeline between several months & several years

Regulatory approval

Regulators such as the European Medicines Agency (EMA) review safety, efficacy and quality and authorise a medicine for use.

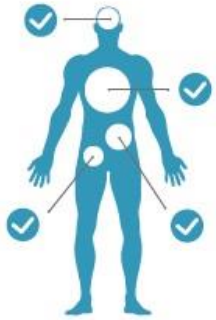
Pricing and reimbursement processes

Decide on price and reimbursement of the product, including health technology assessment (HTA) of added value compared with current treatments.



Phase IV (post market launch)

Continued safety surveillance through post market studies; identifying potential new uses for the medicine.



*timings used are averages and for illustrative purposes only