

# Beautiful information?

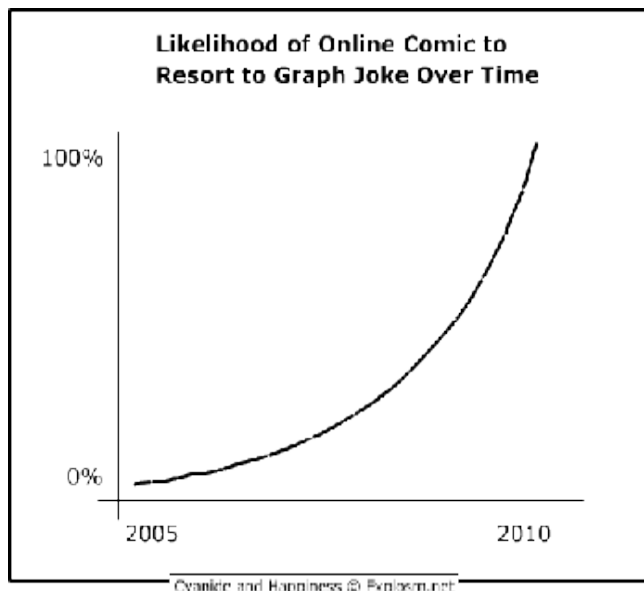
Creating impact with data visualisation and interactive tools

Oliver Francis

**Head of Communications & Knowledge Exchange**

Centre for Diet and Activity Research & MRC Epidemiology Unit

# Research = words + numbers + pictures



**Are takeaways adding pounds?**  
New evidence on how takeaway food outlets where we live and work may affect our health

**CEDAR**  
Center for Diet and Activity Research  
A Public Health Research Centre of Excellence  
www.cedar.mrc.ac.uk

Fully referenced and listed at  
www.cedar.mrc.ac.uk/resources/evidence

**Evidence Brief 7, June 2014**

**Where we live and work can affect the type of food choices we are able to make, which in turn can impact on our weight and health. New research from CEDAR is adding insight into how takeaways near our home, work and travel routes can increase consumption and obesity levels.**

**Takeaways and public health policy**  
Foods eaten outside the home are generally less healthy than those prepared at home. Over the past decade, consumption of food outside the home has increased by almost a third. Over the same period, takeaway food outlets have proliferated throughout our cities and neighbourhoods.

The influence of our food environment on our health is recognised by a number of policy bodies including the Greater London Authority, NICE and Public Health England. A number of Local Authorities, including Waltham Forest and Barking & Dagenham, are already regulating the proliferation of new takeaway food outlets.

However, the UK evidence on associations between takeaway food outlet exposure, diet and body weight has been mixed, and therefore not yet best placed to support neighbourhood-level environmental interventions.

**What CEDAR research is adding**  
Among our research in this area, CEDAR has been using data from the *Ferntand* study. This analysis involves 3442 people born between 1950 and 1975 from fly, Walsby and Cambridge.

Using a geographical information system, we looked at the density of takeaway food outlets at home, at work, as well as along commuting routes from home to work, which were allowed to vary according to transport mode and frequency. We examined these exposures in relation to consumption of takeaway food, measured body mass index, and the likelihood of being obese.

**Figure 1: Mapping one person's exposure to takeaways at home and work**

**Considering the whole environment**  
Studies in this area have largely concentrated on exposure to food outlets in residential neighbourhoods only. However, we spend a large proportion of our day at or travelling to our workplace. Our research with this population has found that considering only the home environment greatly underestimates total takeaway food outlet exposure.

In this study, individuals were exposed to 48% more takeaway food outlets at work than at home. And those with the greatest overall takeaway food outlet exposure tended to be more exposed at work. (See Figure 1.)

**See over for further key results:**

**Brief in brief**

- Previous studies have focused on residential exposure to takeaway food outlets, which are likely to underestimate actual day-to-day food outlet exposure.
- Those most exposed to takeaways were almost twice as likely to be obese than those who encountered the fewest outlets.
- Those with the highest exposure to takeaways consumed an additional 40g of calories/food a week (equivalent to half a small serving of French fries), and had a BMI on average 1.21 units greater than those least exposed.
- There is a strong case for regulating the proliferation of takeaway food outlets, as some Local Authorities are doing, in order to help people choose healthier foods and maintain a healthy body weight.

Page 1 of 2

## Visuals are vital to online success.



Content with relevant images gets **94%** more views than content without.



**94%** equates to almost double the views, and the boost is noticed across all topics and categories.



Tweets with images on Buffer receive **150%** more retweets.

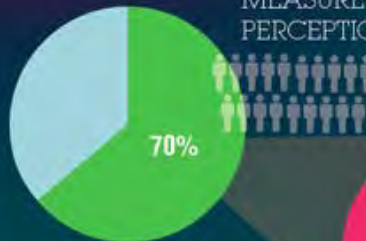
Not this

<http://viz.wtf/>

## HOW MUCH FASHION ENTERPRISE INVEST IN SOCIAL MEDIA?



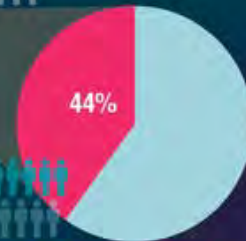
## TODAY 70% LISTEN TO MEASURE BRAND PERCEPTION



## WHO BENEFITS FROM SOCIAL?



## TOMORROW 44% SOCIAL DATA FOR CUSTOMER SEGMENTATION



57%

of Europeans are worried their personal information is not safe.

*“Visualising allows us to get beyond raw numbers and (misleading?) statistics to interpretation and understanding. This allows not only for better communication of key messages emerging from the data, but also for a wider audience to explore and engage with the data themselves.”*

*- Jeff Knezovich*

<https://onthinktanks.org/articles/visualising-data-both-a-science-and-an-art/>



# 'Data visualisation' - 1900 - 2008

## Google Books Ngram Viewer

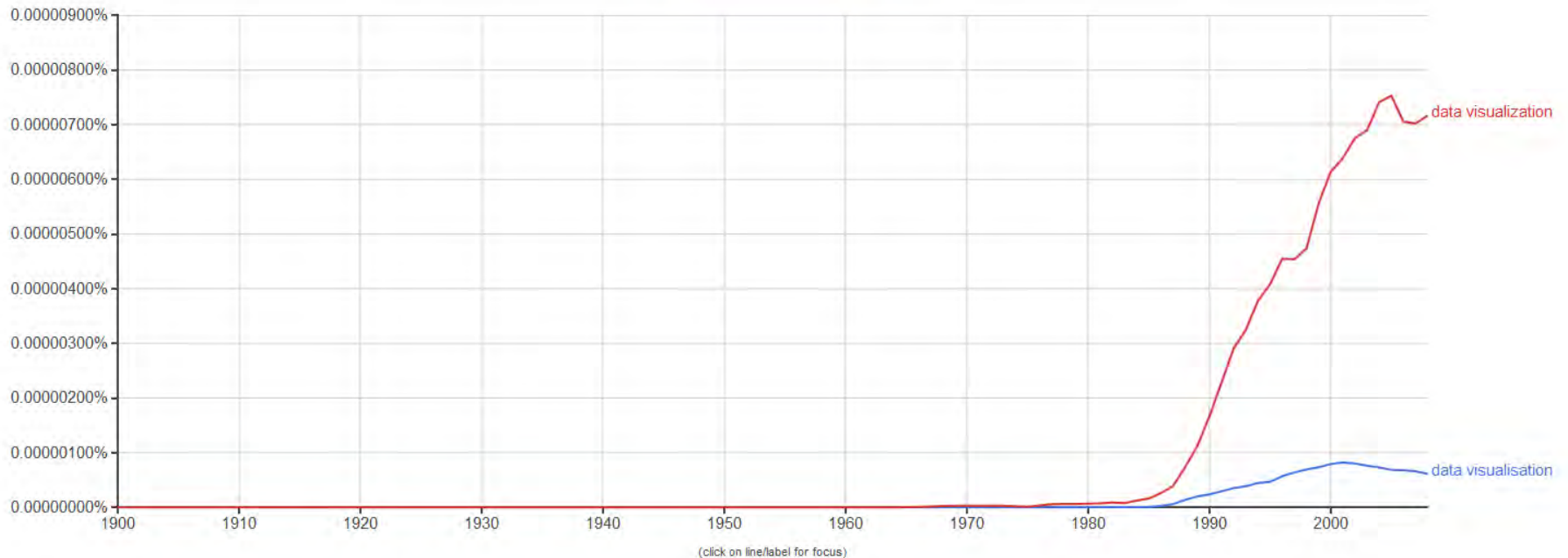
Graph these comma-separated phrases: data visualisation,data visualization

☐ case-insensitive

between 1900 and 2008 from the corpus English

with smoothing of 3

[Search lots of books](#)



# 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 PREVENTABLE 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. 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.

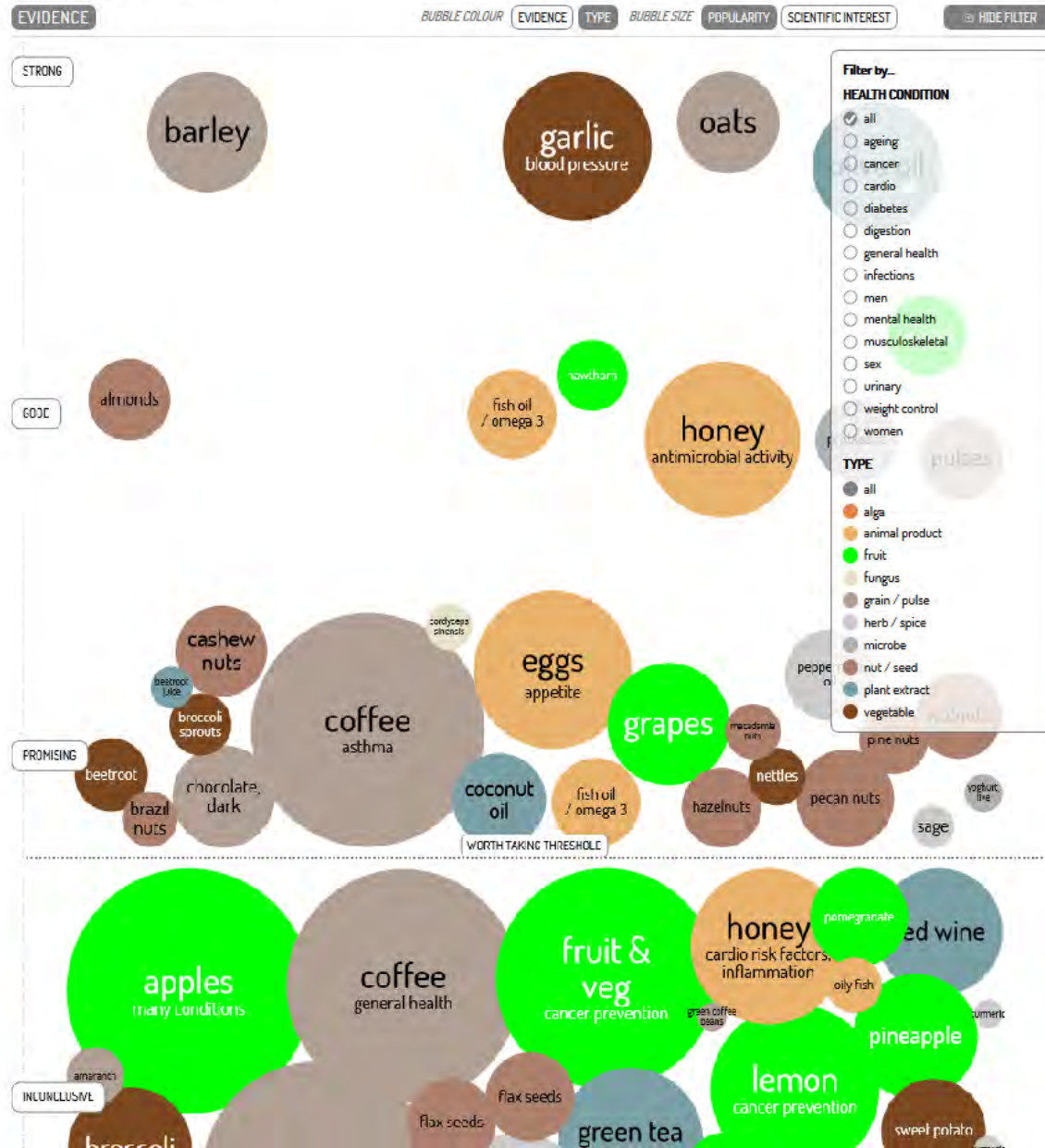
Florence Nightingale, 1858





# Snake Oil Superfoods?

Solid scientific evidence for extra health benefits of certain foods  
showing tangible health effects

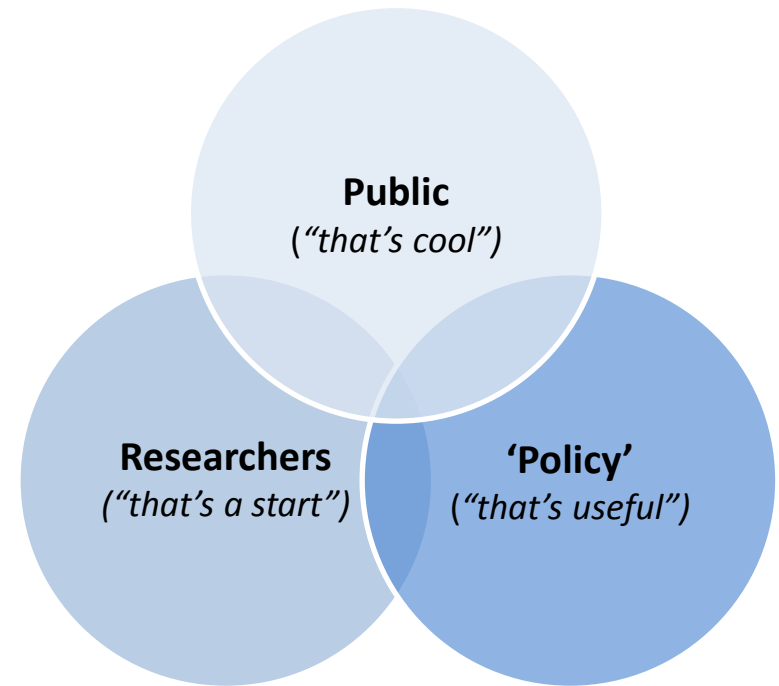
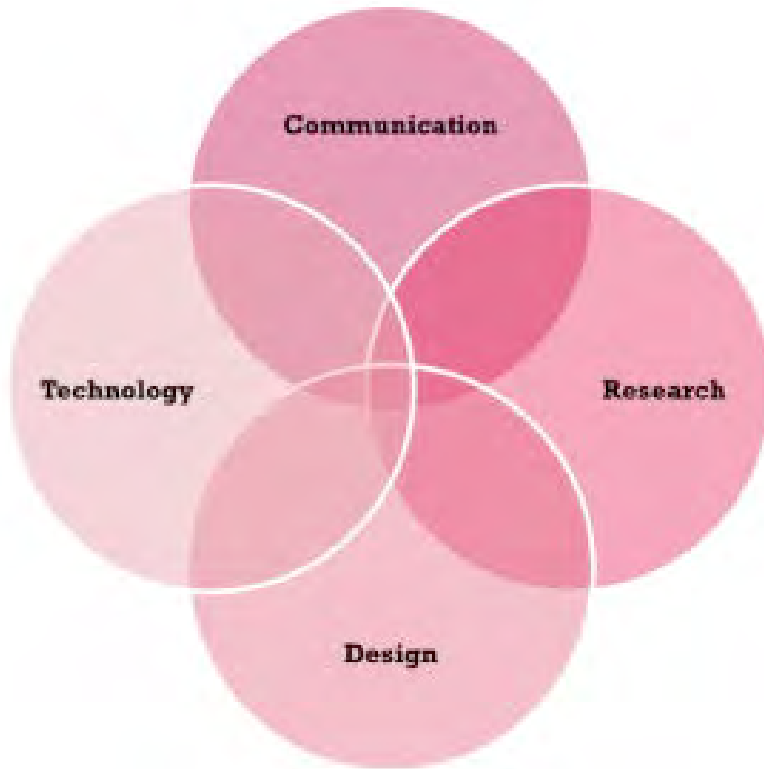


[www.informationisbeautiful.net](http://www.informationisbeautiful.net)

2013

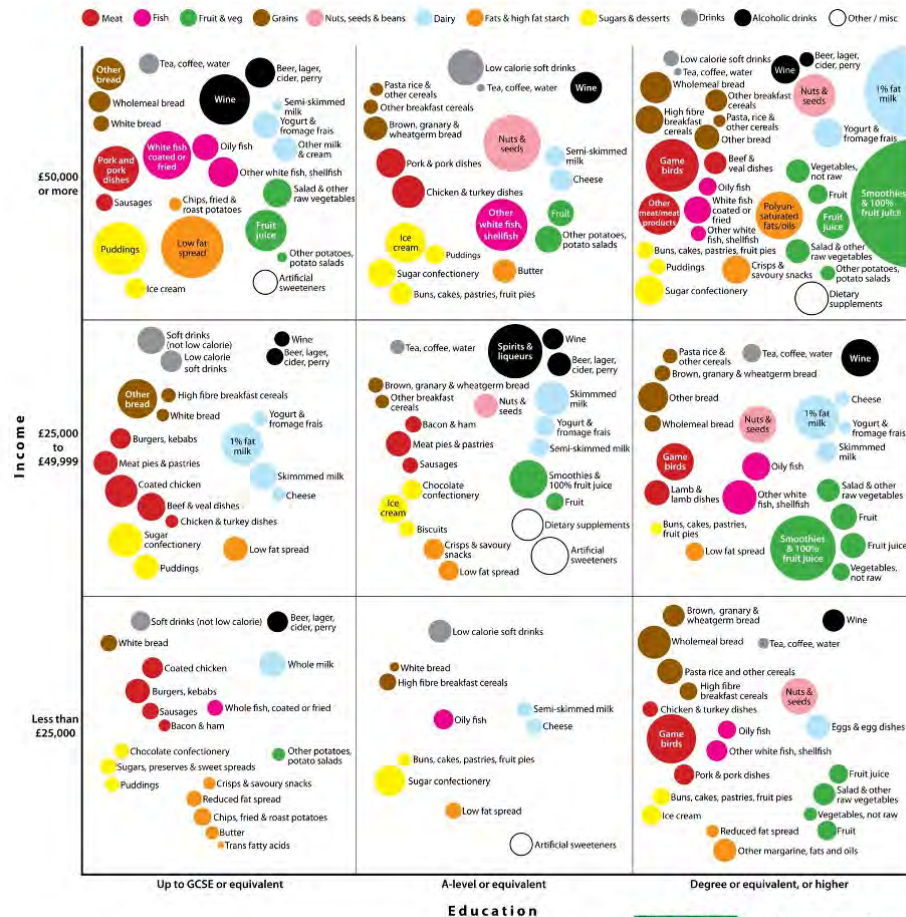


# Different skills, different audiences



<https://onthinktanks.org/articles/visualising-data-both-a-science-and-an-art/>

# That's cool: Food, income and education



**CEDAR** Centre for Diet and Activity Research  
 A MRC, Public Health Research Centre at Bristol  
[www.cedar.bham.ac.uk/resources/evidence](http://www.cedar.bham.ac.uk/resources/evidence)

<http://epidvisualisations.medschl.cam.ac.uk/food-income-education>



FINANCIAL TIMES

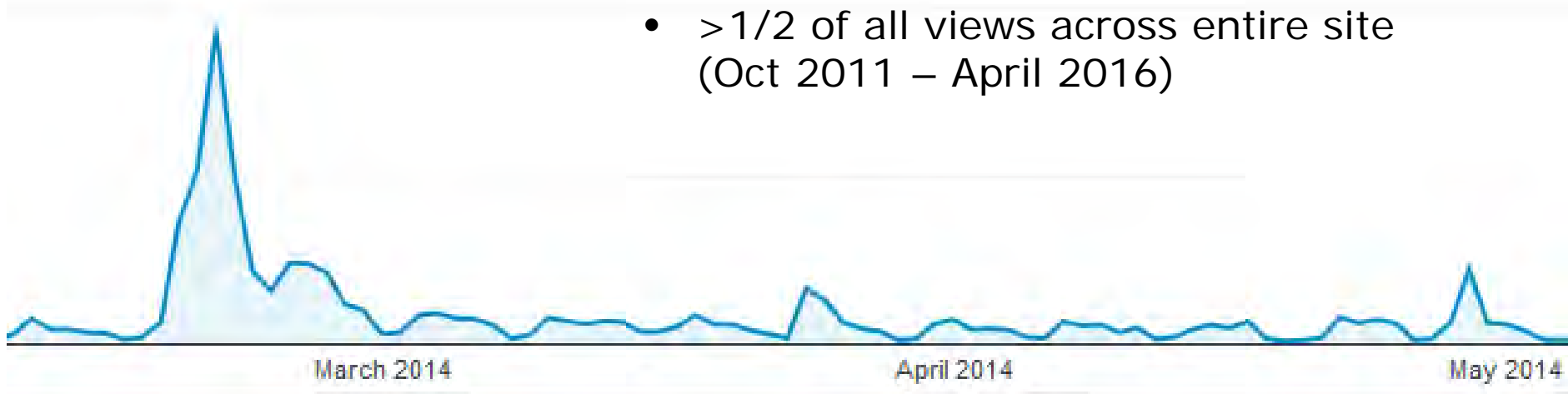
The Washington Post

KNOW MORE FROM WONKBLOG



reddit

- Published March 2014
- 22,000 views
- Most in first month
- >1/2 of all views across entire site (Oct 2011 – April 2016)







$A = 8$



$A = 4$



$A = 2$

HOME » NEWS

## Healthy diet costs three times that of junk food

Healthy foods cost three times as much as unhealthy foods, according to a Cambridge University study showing a widening gap in the costs between junk foods and fine fare

 13K   0  60  13K  Email



1,000 calories made up from healthy items cost an average of £7.49 in 2012 while the same calorie intake from less healthy items, including doughnuts, could be purchased for an average of £2.50 Photo: Alamy




By Laura Donnelly, Health Editor

7:00PM BST 08 Oct 2014

 6,264 followers

Eating healthily costs three times as much as consuming unhealthy food - and the price gap is widening, according to a study by Cambridge University.

 Print this article

News

UK News » Health »  
Health News »  
Laura Donnelly »

In News

### Latest Video»



Cameron mimes with Osborne in Budget



How much sugar is in your diet?



Analysis: Donald Trump sounds death knell for Republican politics of old



Angelina Jolie caught in crush visiting refugees



North Korea jails US tourist for 15 years

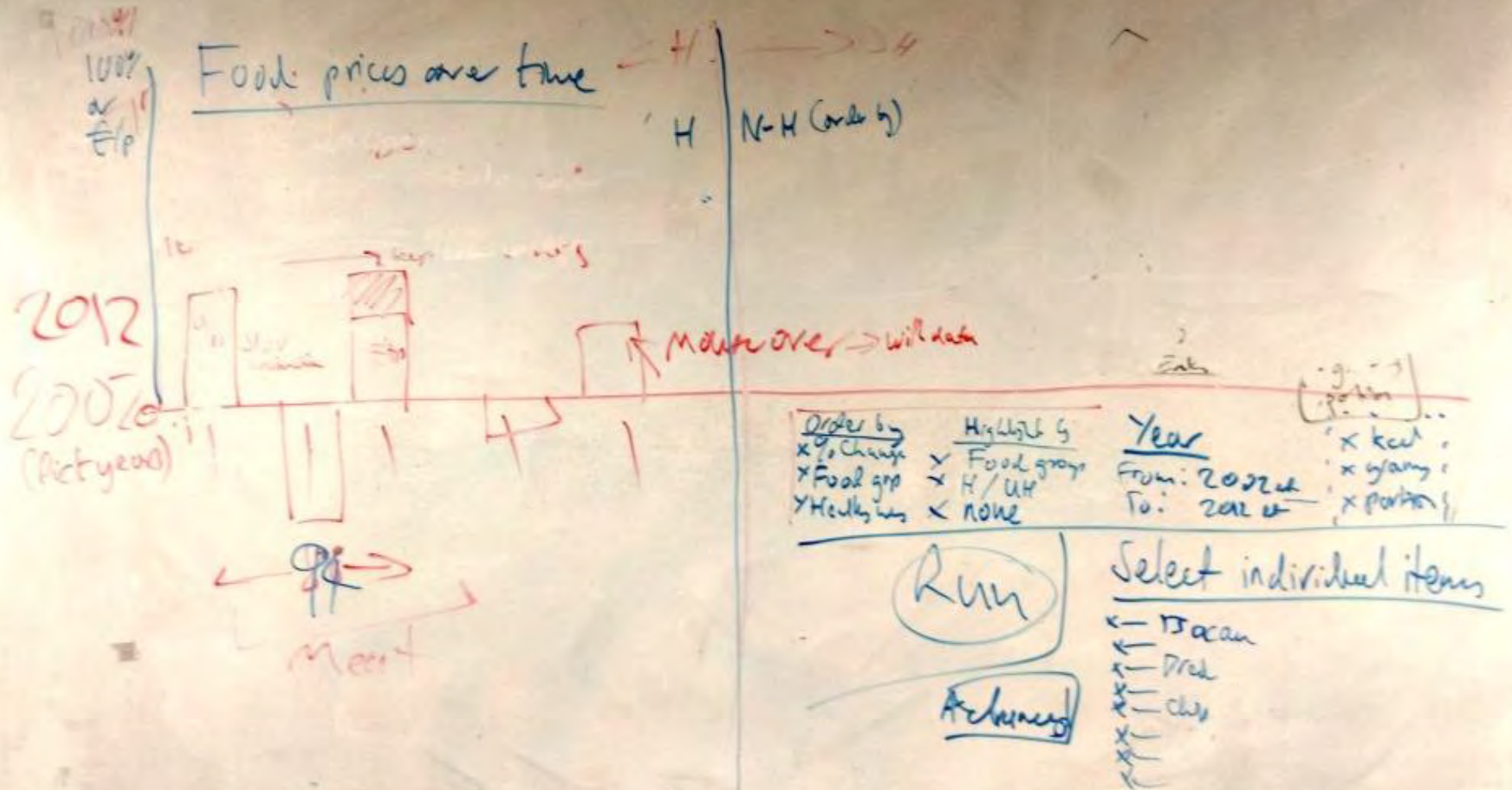


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### Featured Current Accounts

Bank	Account Name	Offer	More details
First Direct	1st Current Account	Exclusive £150 cashback	Apply

# Visualising your visualisation (not beautiful)

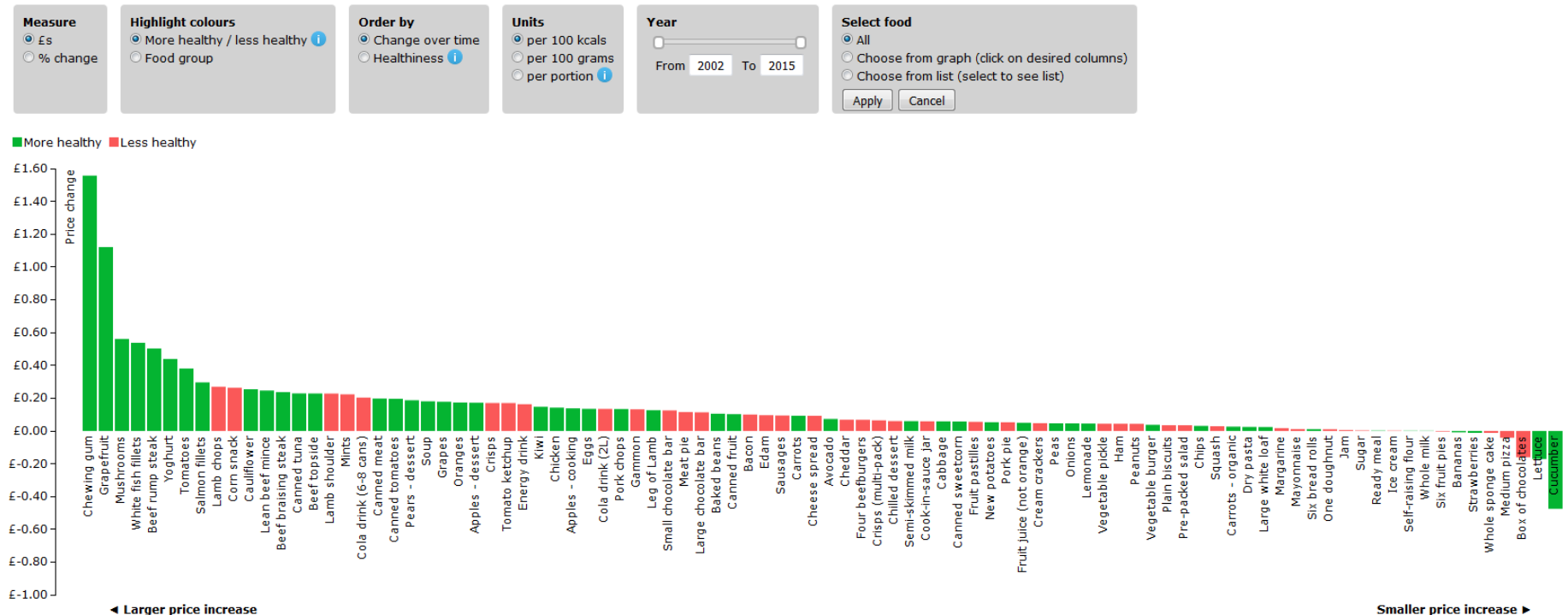




# That's a start – food price change

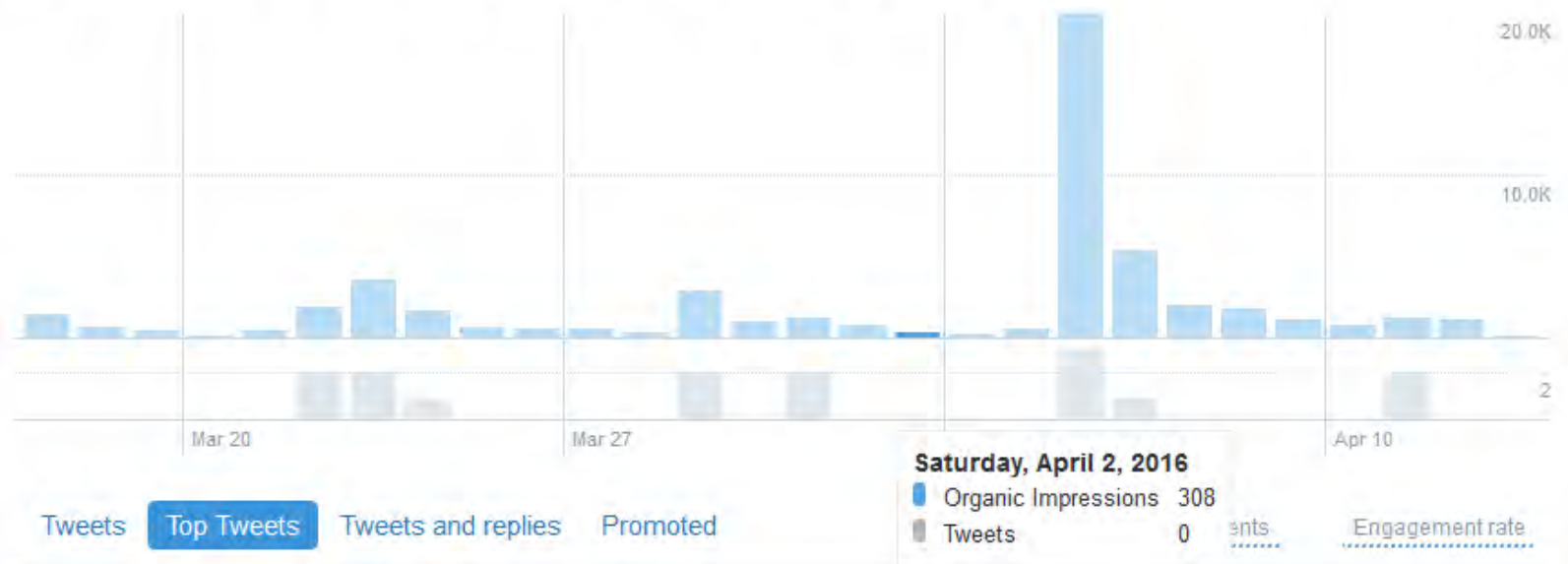
## Food price changes 2002-2015

Use the interactive graph below to explore the change in price of 94 food items over ten years from 2002 to 2015. The price data comes from Office of National Statistics' Consumer Price Index 'basket': the list of items used to measure inflation in the UK. The items included here are those which remained in the 'basket' every year. We welcome your feedback on this tool – please email Oliver Francis, [ocf26@cam.ac.uk](mailto:ocf26@cam.ac.uk)

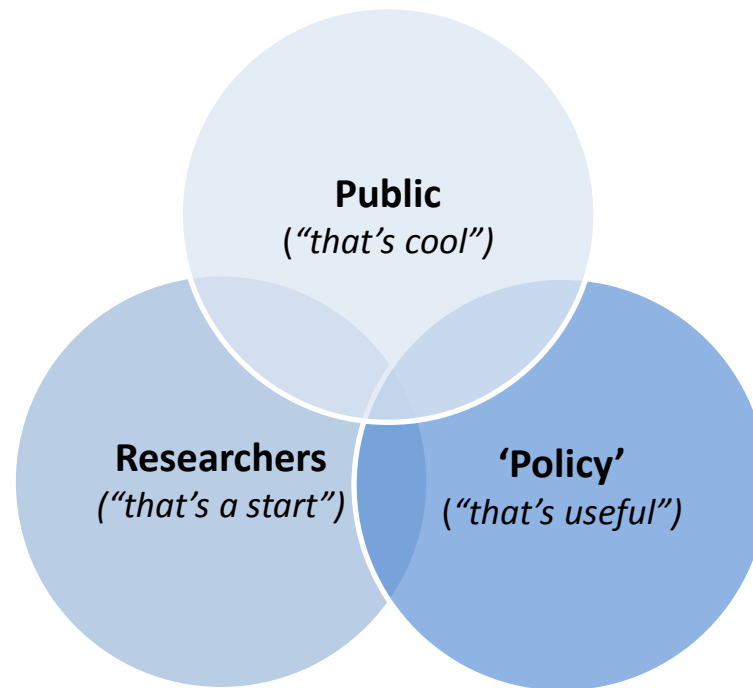


<http://epidvisualisations.medschl.cam.ac.uk/foodprice/>

Your Tweets earned **43.2K impressions** over this **28 day** period



<b>CEDAR</b> @CedarUK - Apr 5	18,867	240	1.3%
Explore 13 year of <a href="#">#food</a> price changes in new CEDAR / @MRC_Epid interactive <a href="#">epidvisualisations.medschl.cam.ac.uk/foodprice/</a> <a href="#">pic.twitter.com/xNuesdReRg</a>			
<a href="#">View Tweet activity</a>			<a href="#">Promote</a>
<b>CEDAR</b> @CedarUK - Mar 23	2,229	18	0.8%
Healthy weight, healthy futures: Local government action to tackle childhood obesity <a href="#">local.gov.uk/web/guest/publ...</a> From <a href="#">@LGacomms</a>			
<a href="#">View Tweet activity</a>			<a href="#">Promote</a>
<b>CEDAR</b> @CedarUK - Mar 29	2,131	42	2.0%
Propensity to Cycle project phase 1 reports published by <a href="#">@transportgovuk</a> . PCT version 1 to be launched July 2016 <a href="#">gov.uk/government/pub...</a>			
<a href="#">View Tweet activity</a>			<a href="#">Promote</a>

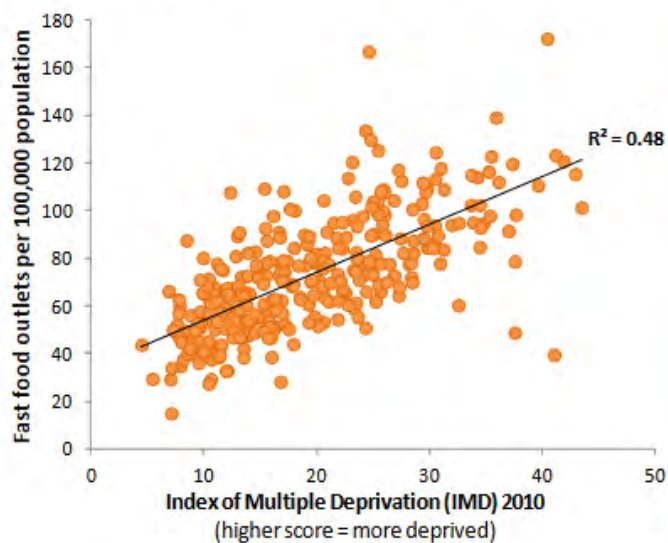




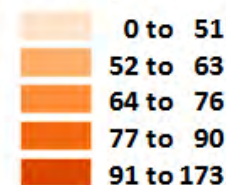
# Obesity and the environment

## Fast food outlets

Relationship between density of fast food outlets and deprivation  
by local authority



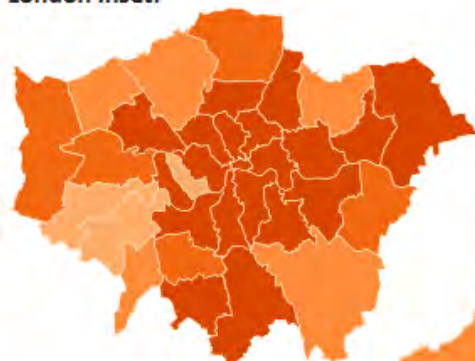
Fast food outlets  
by local authority  
per 100,000 population



England value  
per 100,000 population

77.9

London inset:

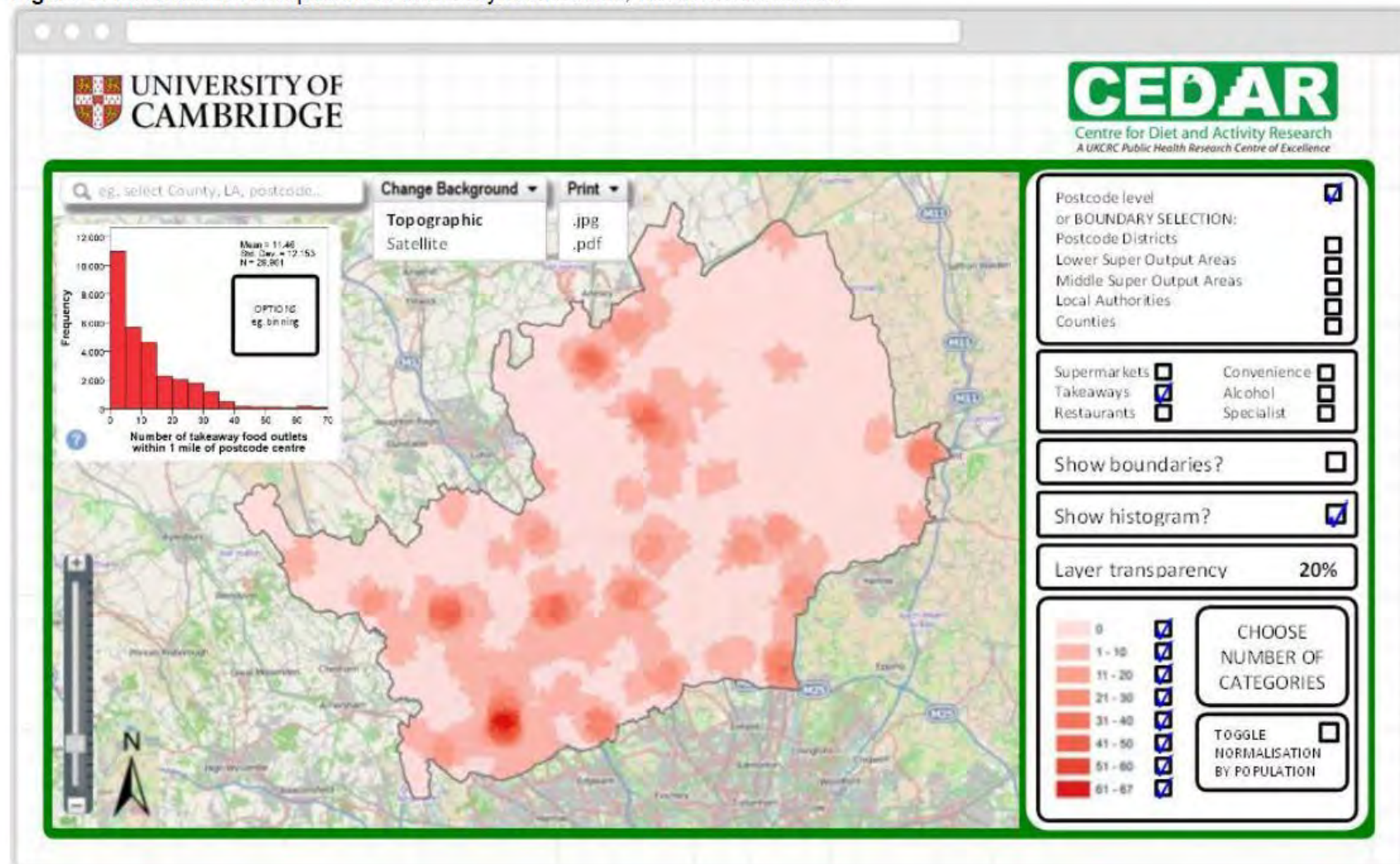


© Crown copyright and database rights 2012 Ordnance Survey 100020290

Data sources: InterestMap™, Ordnance Survey (2010)  
Indices of Deprivation 2010, DCLG  
ONS mid-year population estimates 2010

# Food environment assessment tool (FEAT)

Figure 1: Postcode-level exposure to takeaway food outlets, Hertfordshire extent.





## Food Environment Assessment Tool (FEAT)

Tool How to use FAQs

Search

Go

Current level: COUNTY

Name: Gateshead

Code: E08000037

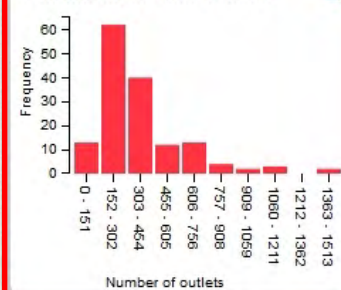
Count: 242

☐ Lock level

Food outlet types

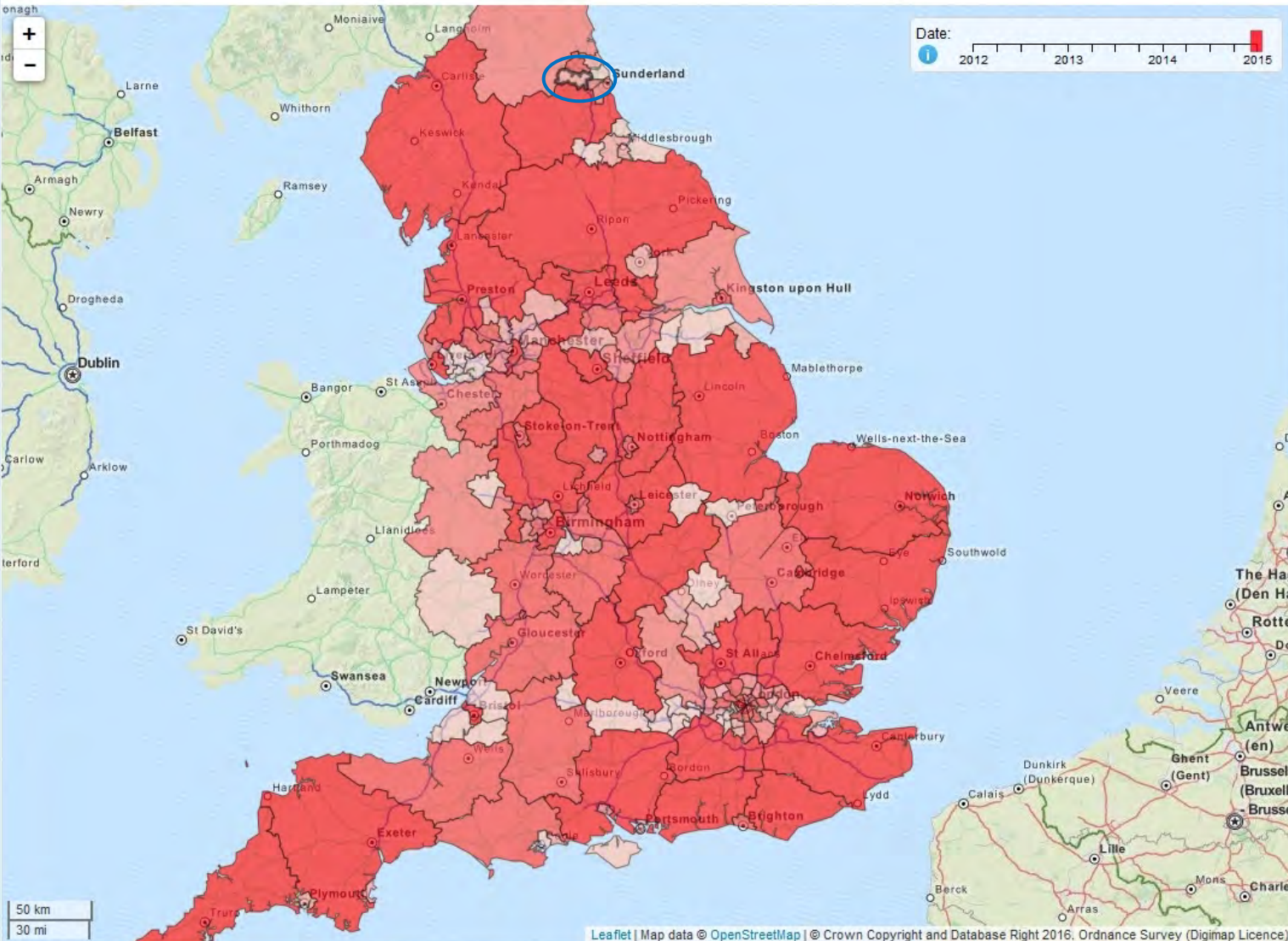
- ☐ Cafes
- ☐ Convenience stores
- ☐ Restaurants
- ☐ Speciality outlets
- ☐ Supermarkets
- ☒ Takeaways

Distribution of food outlets



Number of food outlets

- 0 - 0
- 31 - 189
- 195 - 277
- 282 - 353
- 356 - 499
- 513 - 1513

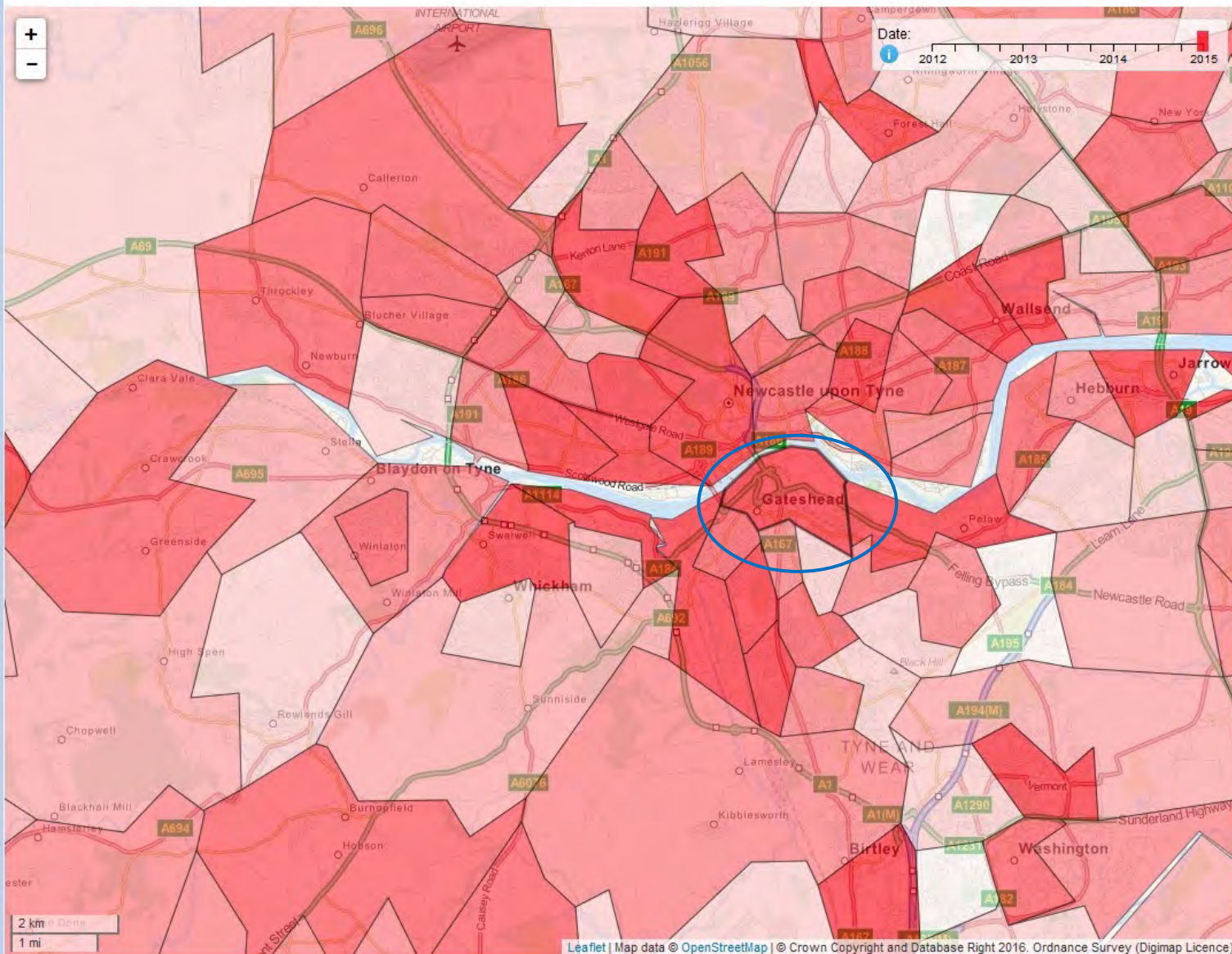


Leaflet | Map data © OpenStreetMap | © Crown Copyright and Database Right 2016, Ordnance Survey (Digimap Licence)



## Food Environment Assessment Tool (FEAT)

Tool How to use FAQs



Search ne82ar Go

Current level: MSAO

Name: Gateshead 027

Code: E02006841

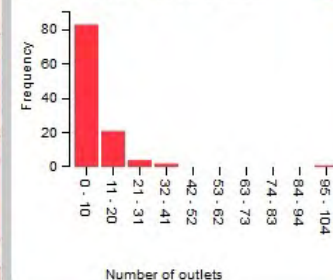
Count: 21

☐ Lock level

Food outlet types

- ☐ Cafes
- ☐ Convenience stores
- ☐ Restaurants
- ☐ Speciality outlets
- ☐ Supermarkets
- ☒ Takeaways

Distribution of food outlets



Number of food outlets

- 0-0
- 1-3
- 3-5
- 5-7
- 8-12
- 12-104



## Food Environment Assessment Tool (FEAT)

Tool How to use FAQs

Search ne82ar

Go

Current level: LSOA

Name: Gateshead 027D

Code: E01008168

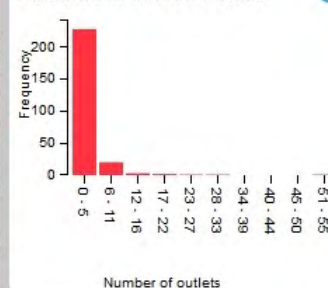
Count: 1

☐ Lock level

### Food outlet types

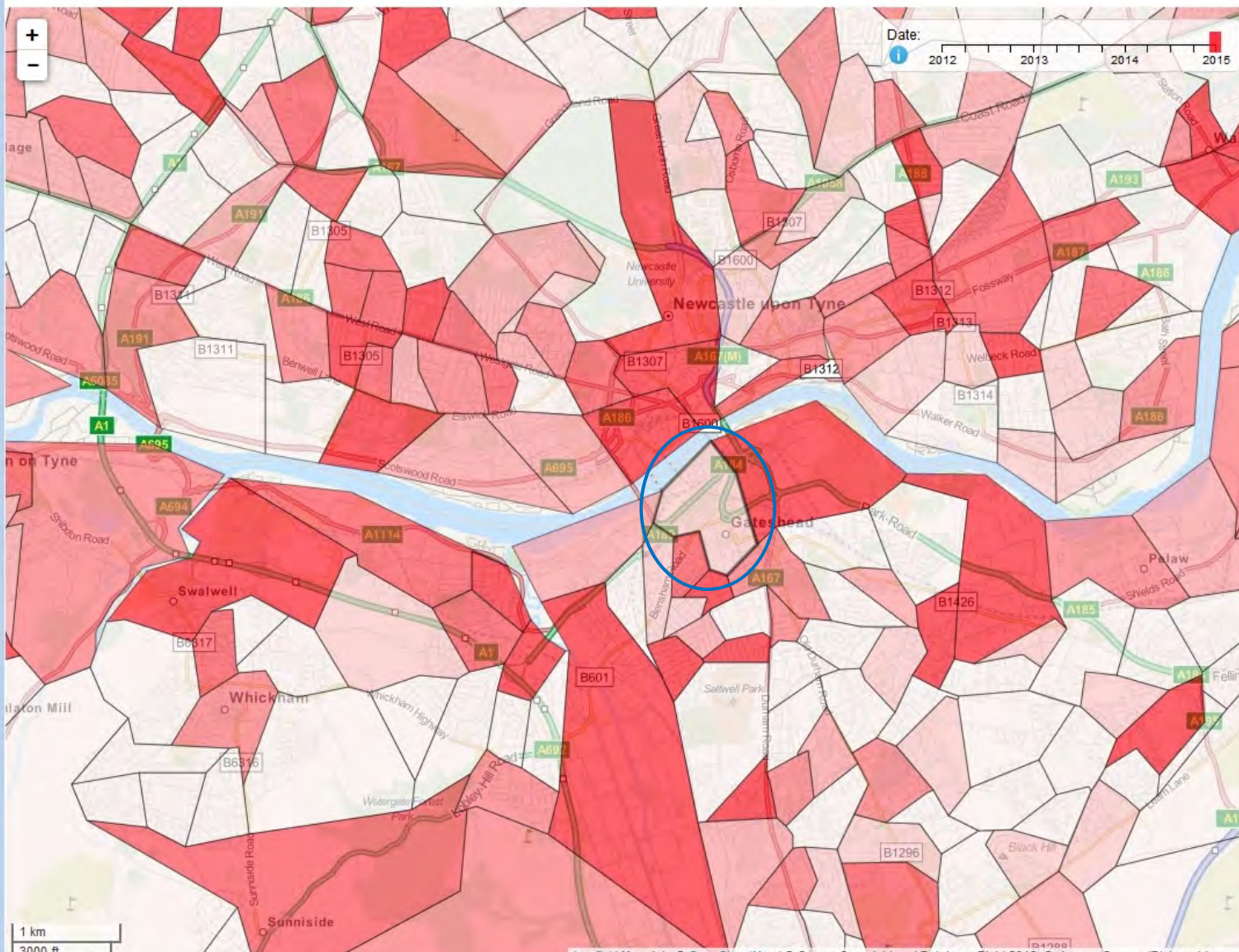
- ☐ Cafes
- ☐ Convenience stores
- ☐ Restaurants
- ☐ Speciality outlets
- ☐ Supermarkets
- ☒ Takeaways

### Distribution of food outlets



### Number of food outlets

- 0-0
- 1-1
- 1-2
- 2-3
- 3-5
- 5-55



Leaflet | Map data © OpenStreetMap | © Crown Copyright and Database Right 2016. Ordnance Survey (Digimap Licence)



## Food Environment Assessment Tool (FEAT)

Tool How to use FAQs

Search ne82ar

Current level: PC

Name: NE82AR

Code: NE82AR

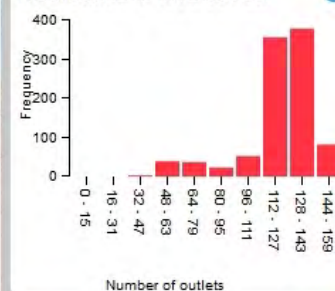
Count: 142

☒ Lock level

Food outlet types

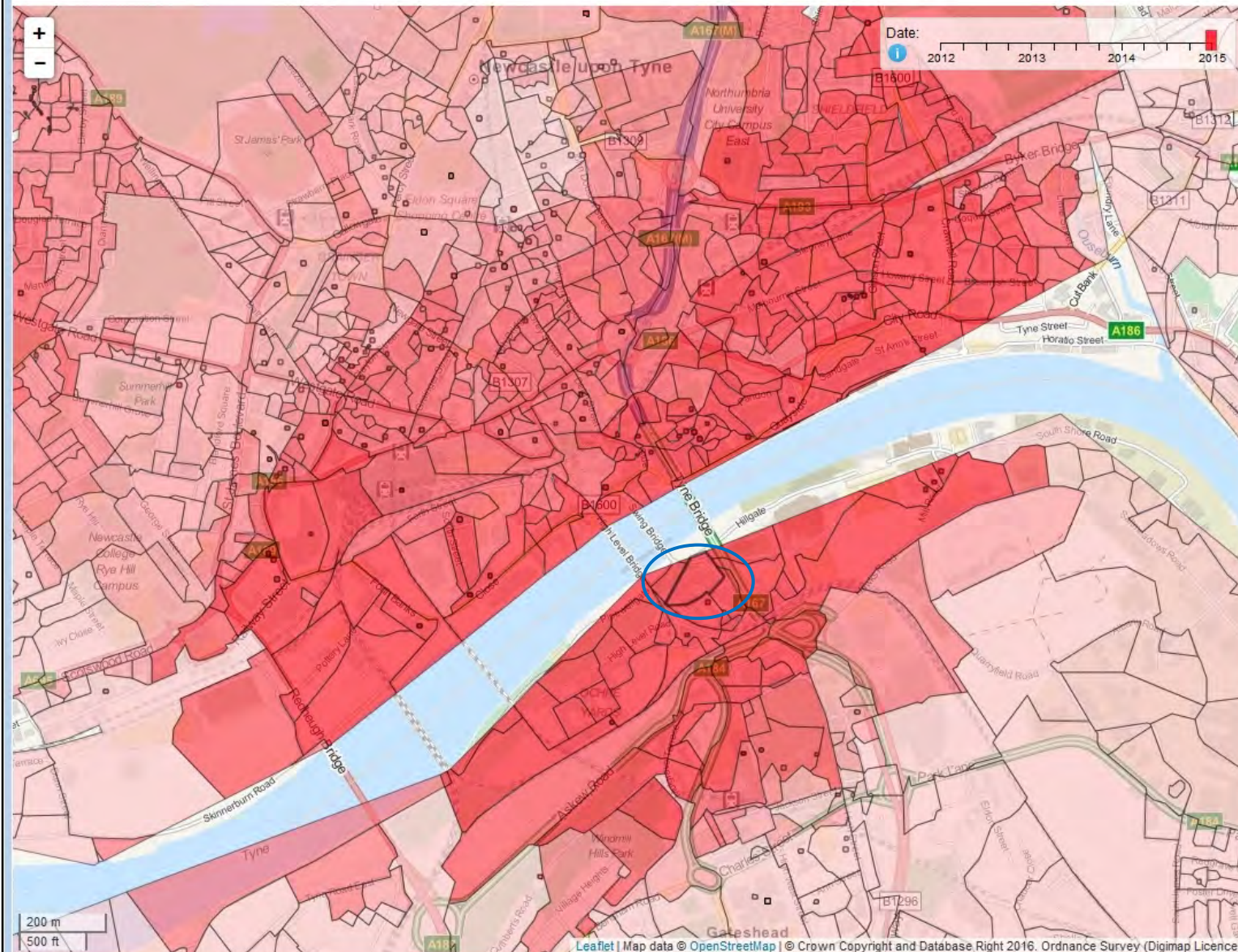
- ☐ Cafes
- ☐ Convenience stores
- ☐ Restaurants
- ☐ Speciality outlets
- ☐ Supermarkets
- ☒ Takeaways

Distribution of food outlets

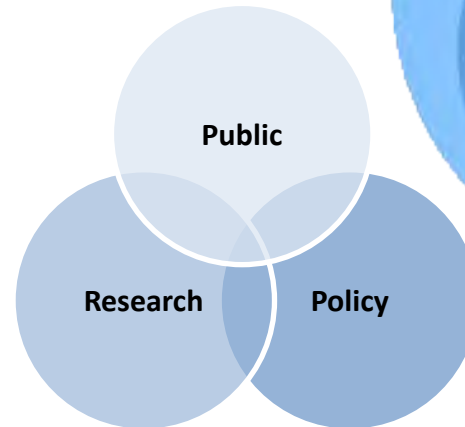
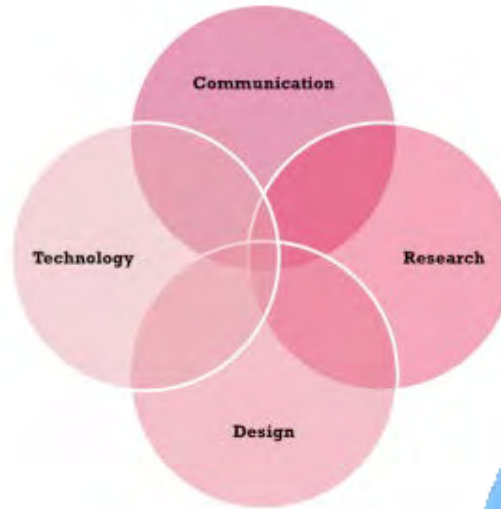


Number of food outlets

- 0 - 0
- 41 - 119
- 119 - 125
- 125 - 130
- 131 - 138
- 138 - 159

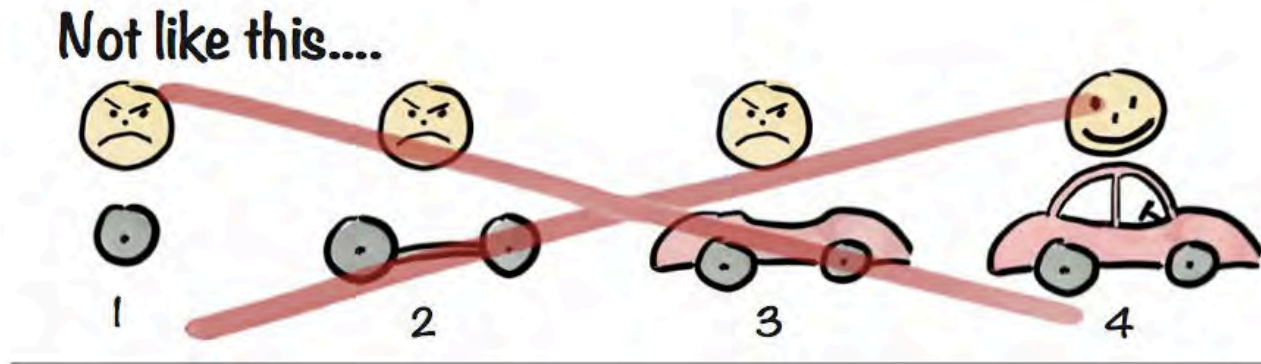


# Challenges and lessons

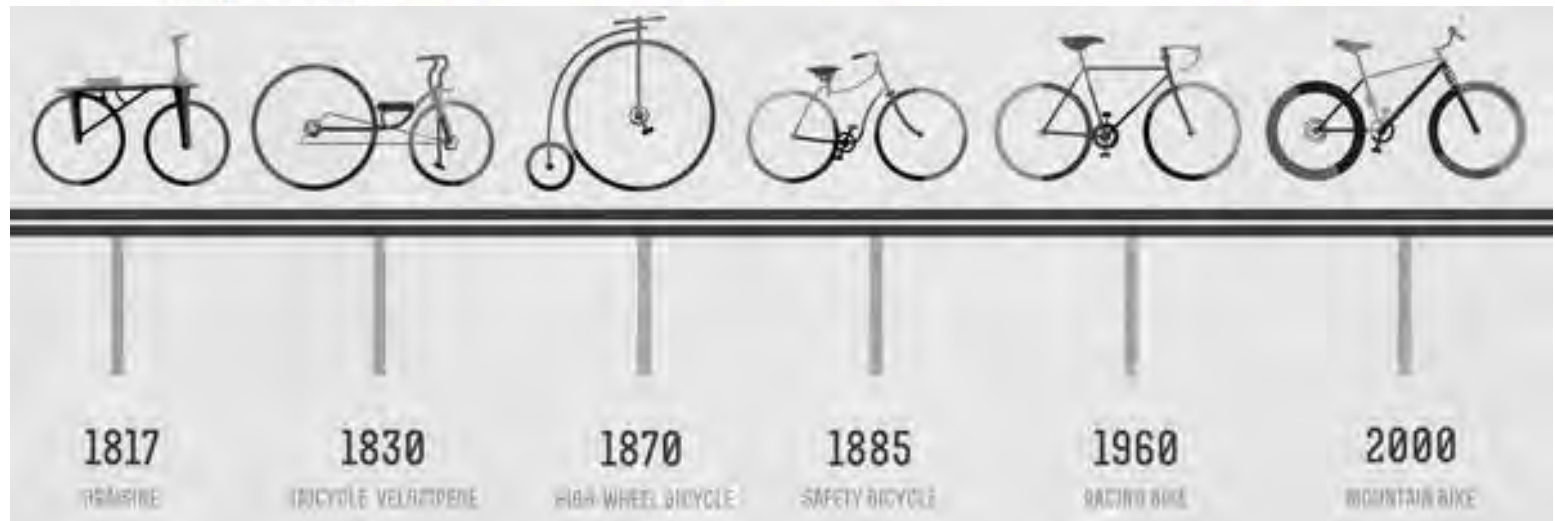




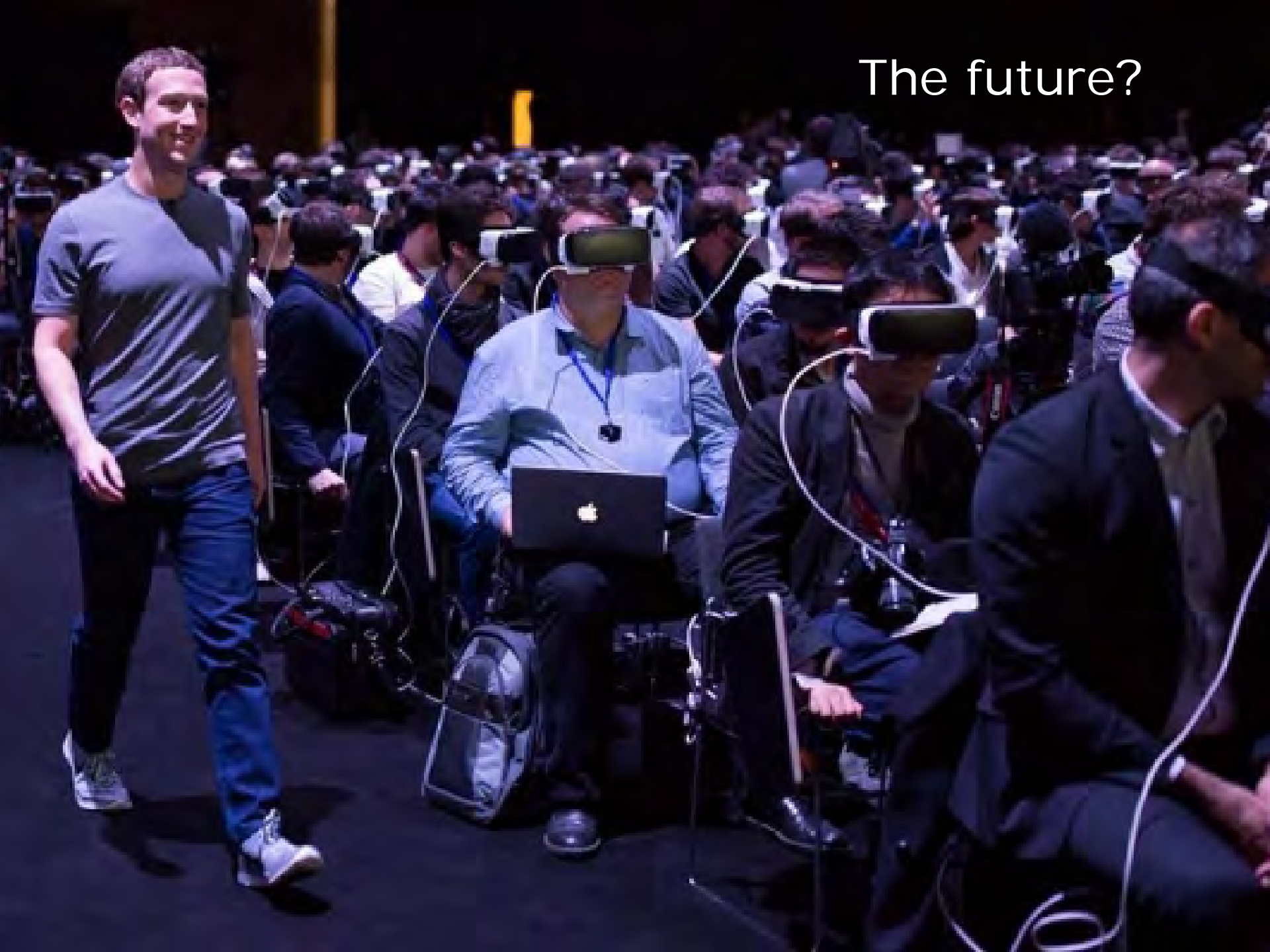
# Minimum viable product – realistic?



Like this!



The future?



## Acknowledgements

Thanks to Nick Jones (Food choice and prices), Tom Burgoine (food environment tool), James Woodcock (cycling propensity tool – not shown), Jasmine Morris, Adam Dickinson, David Vaughan, Alvaro Ullrich (Data & IT)

This work was undertaken by the Centre for Diet and Activity Research (CEDAR), a UKCRC Public Health Research Centre of Excellence.

Funding from Cancer Research UK, the British Heart Foundation, the Economic and Social Research Council, the Medical Research Council, the National Institute for Health Research, and the Wellcome Trust, under the auspices of the UK Clinical Research Collaboration, is gratefully acknowledged.



# Any questions – and a few links

## Our visualisations and tools

- Food choices by income and education <http://epidvisualisations.medschl.cam.ac.uk/food-income-education>
- Food price changes <http://epidvisualisations.medschl.cam.ac.uk/foodprice/>
- Food Environment Assessment Tool – coming soon!
- National Propensity to Cycle Tool [www.pct.bike](http://www.pct.bike) (not shown)

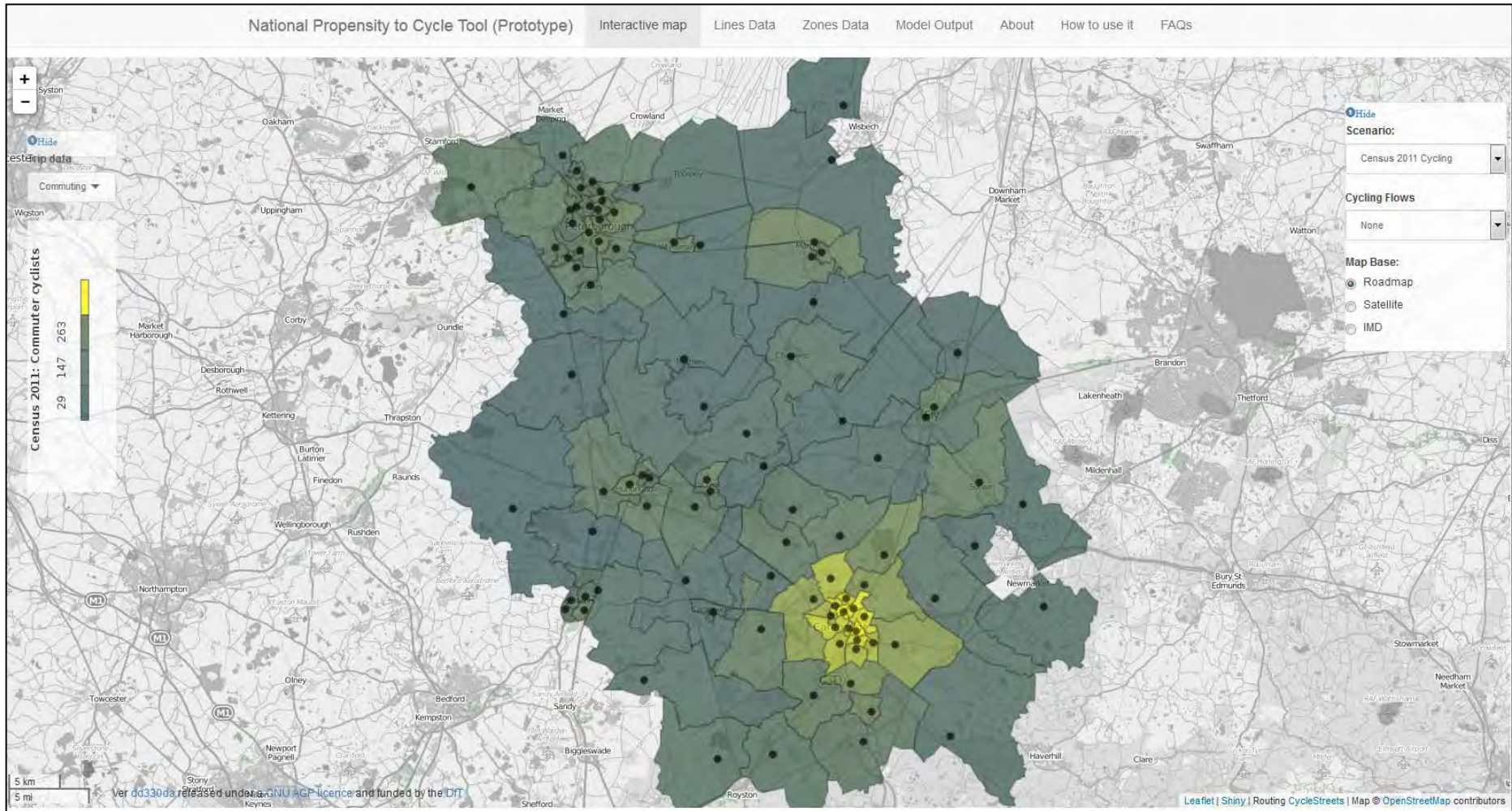
Oliver Francis: [ocf26@cam.ac.uk](mailto:ocf26@cam.ac.uk)

## Some other resources

- **Information is beautiful** – [www.informationisbeautiful.net](http://www.informationisbeautiful.net)
- **Seeing data** – making sense of data visualisations <http://seeingdata.org>
- **Flowing data** – lots of interactives <http://flowingdata.com/>
- **Ttdatavis** – how tos using open source software [www.ttdatavis.onthinktanks.org/how-tos/](http://www.ttdatavis.onthinktanks.org/how-tos/)
- **D3.js** – JavaScript tool - <https://d3js.org/>
- **Tableau Public** – free dataviz software <https://public.tableau.com/s/>



# National Propensity to Cycle Tool [www.pct.bike](http://www.pct.bike)





# Is a Picture Really Worth 1000 Words?

## Documentary Video as a Tool for Knowledge Exchange

Callista Haggis  
Manager, Knowledge Translation and Exchange

Dr. Joanie Sims-Gould  
Dr. Meghan Winters  
Suzanne Therrien  
Dr. Heather McKay



# CENTRE FOR HIP HEALTH AND MOBILITY

- Community based research
- Lifespan approach
- Impact



# Principles That Drive our Practice

Research article

Highly accessed

Open Access

## Sustained impact of community-based physical activity interventions: key elements for success

Callista Haggis<sup>1\*</sup>, Joanie Sims-Gould<sup>1,2</sup>, Meghan Winters<sup>3</sup>, Kaitlyn Gutteridge<sup>1,2</sup> and Heather A McKay<sup>1,2</sup>

BMC Public Health

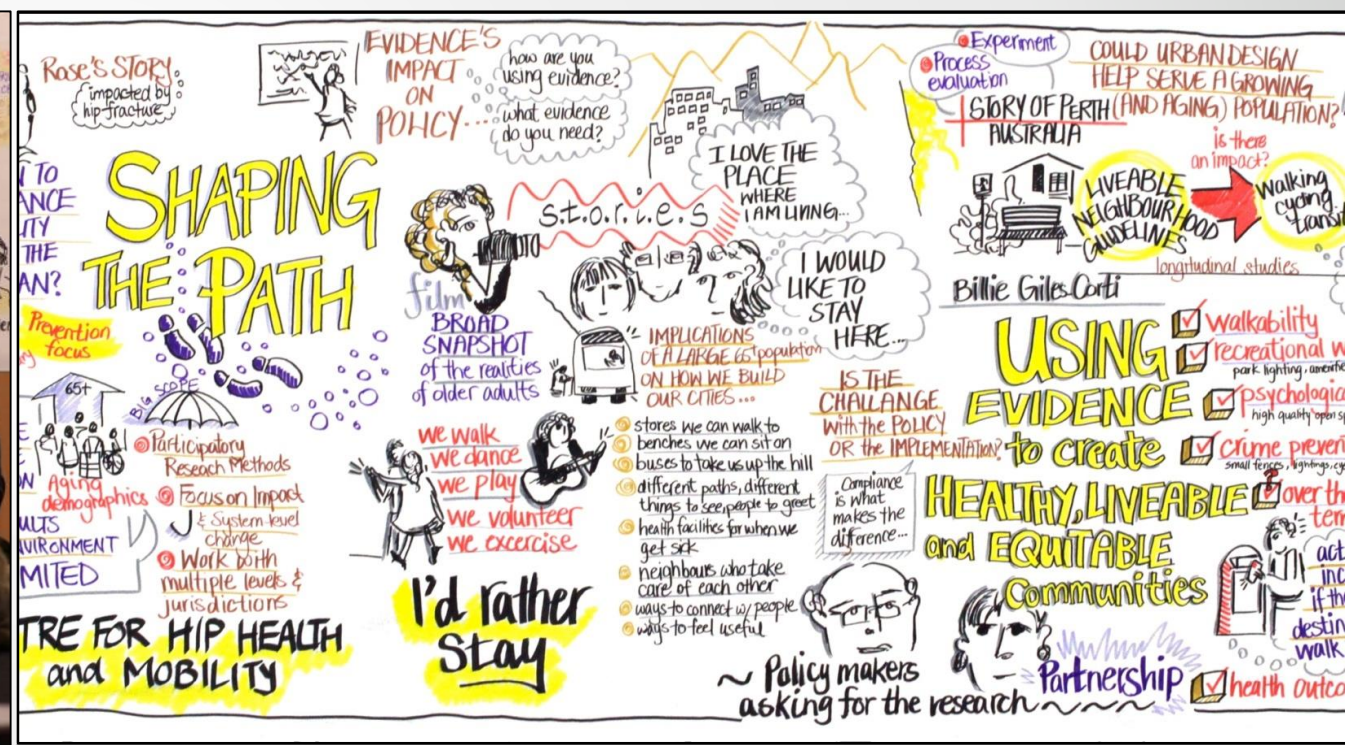
- interdisciplinary teams
- participatory action research approach
- social ecological framework





# **PHASE 1:** **STRATEGIC DISSEMINATION**

# VIDEO PREMIERE: Shaping the Path Symposium





# INVITATION TO DOCUMENTARY FILM PREMIERE *I'D RATHER STAY*

Connections  
Isolation  
Transportation  
Staying Active

How do our  
neighbourhoods  
influence health?

*I'd Rather Stay*  
intimately looks at the  
diverse lives of older  
adults who strive to  
age in place.



## COMMUNITY SCREENING AND DISCUSSION



**VanCity Theater:** 1181 Seymour St, Vancouver BC  
**November 20 2013**

**Doors at 1:00pm:** Program Begins at 2:00pm sharp  
**Free Admission**

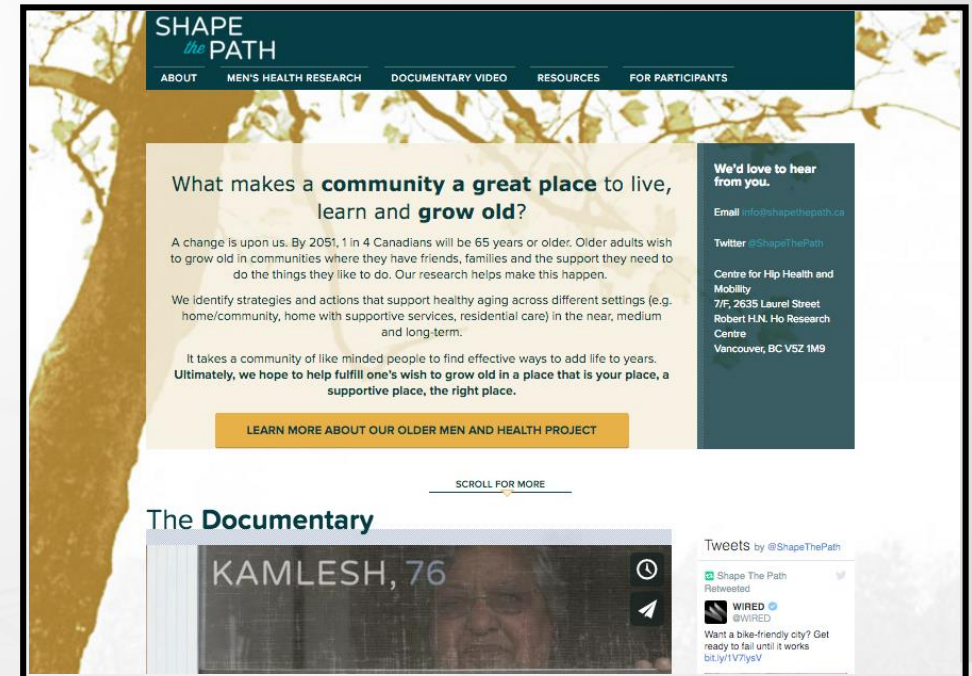
**Please RSVP** and/or contact us to add others to the invitation list  
**Contact** [Sarah.Furst@hiphealth.ca](mailto:Sarah.Furst@hiphealth.ca) 604.875.4111 Ext 21711

# STRATEGIC SNOWBALLING

PREMIERE SCREENINGS =  
84 + screening requests

- Government officials (aging and urban planning)
- Community forums
- Post-secondary classrooms

WEBSITE DEVELOPMENT:  
[www.shapethepath.ca](http://www.shapethepath.ca)





# FILM FESTIVAL CIRCUIT



# PHASE 2: IMPACT ASSESSMENT



# DATA COLLECTION

## GEOGRAPHIC LOCATIONS

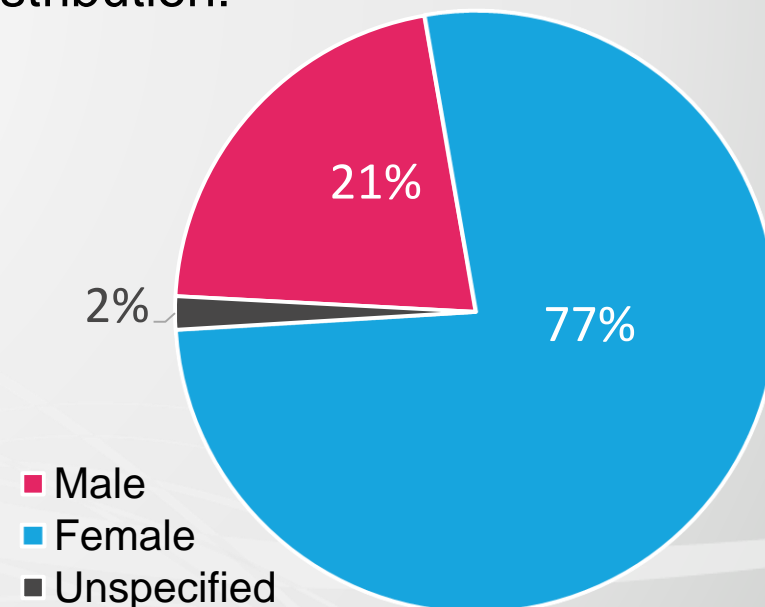


## DEMOGRAPHICS

Number of Participants: **48**

Average Age: **73yrs**

Gender Distribution:





## DOCUMENTARY VIDEO AS A DISCUSSION TOOL

“[What stood out for me] was the 88-year-old widow, because at that age, sometimes you just curl up and get into a deep depression... But she chose instead to reach out, to re-integrate and do the zumba, the samba, whatever she was doing.... I’ve danced all my life.”



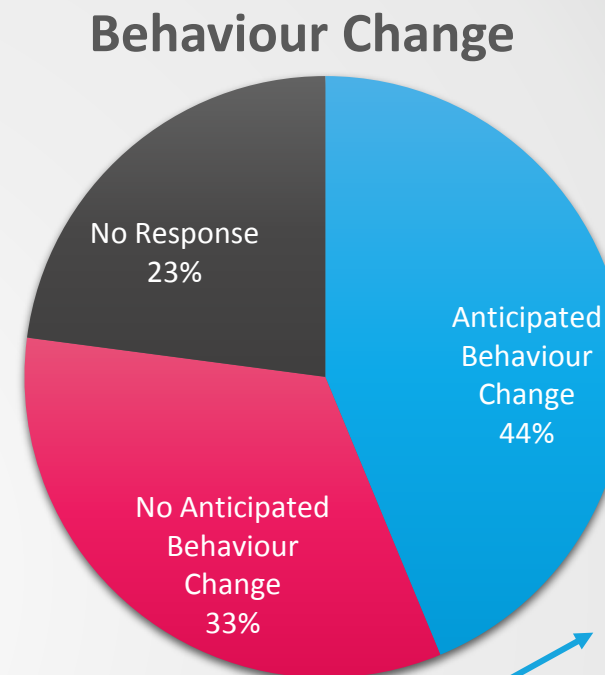
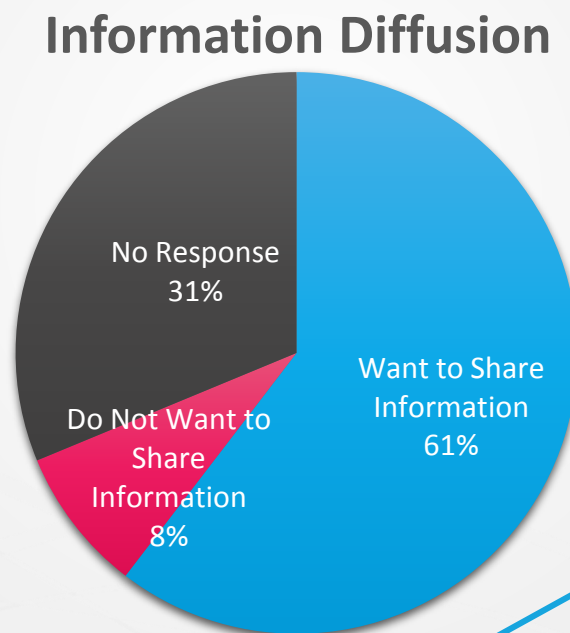
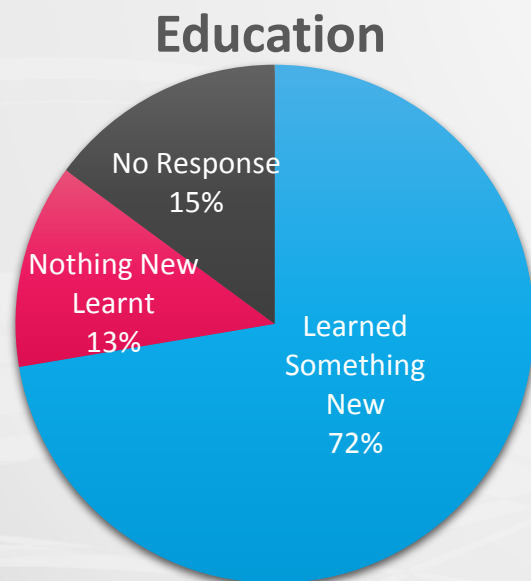


## DOCUMENTARY VIDEO AS A DISCUSSION TOOL

“I think one of the prominent things that this movie showed, and also which we all learn as you get older, is the word “change” and “adaptability.” I’ve had a lot of changes in my life... At 92 years of age, I had problems with the nervous system which has put me into a walker.

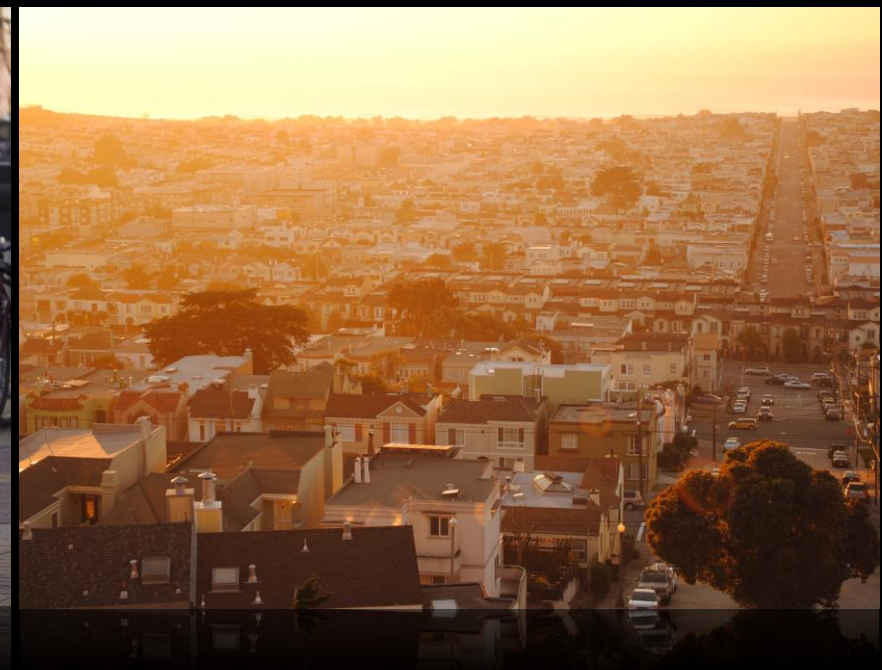


# SELF-REPORTED IMPACT

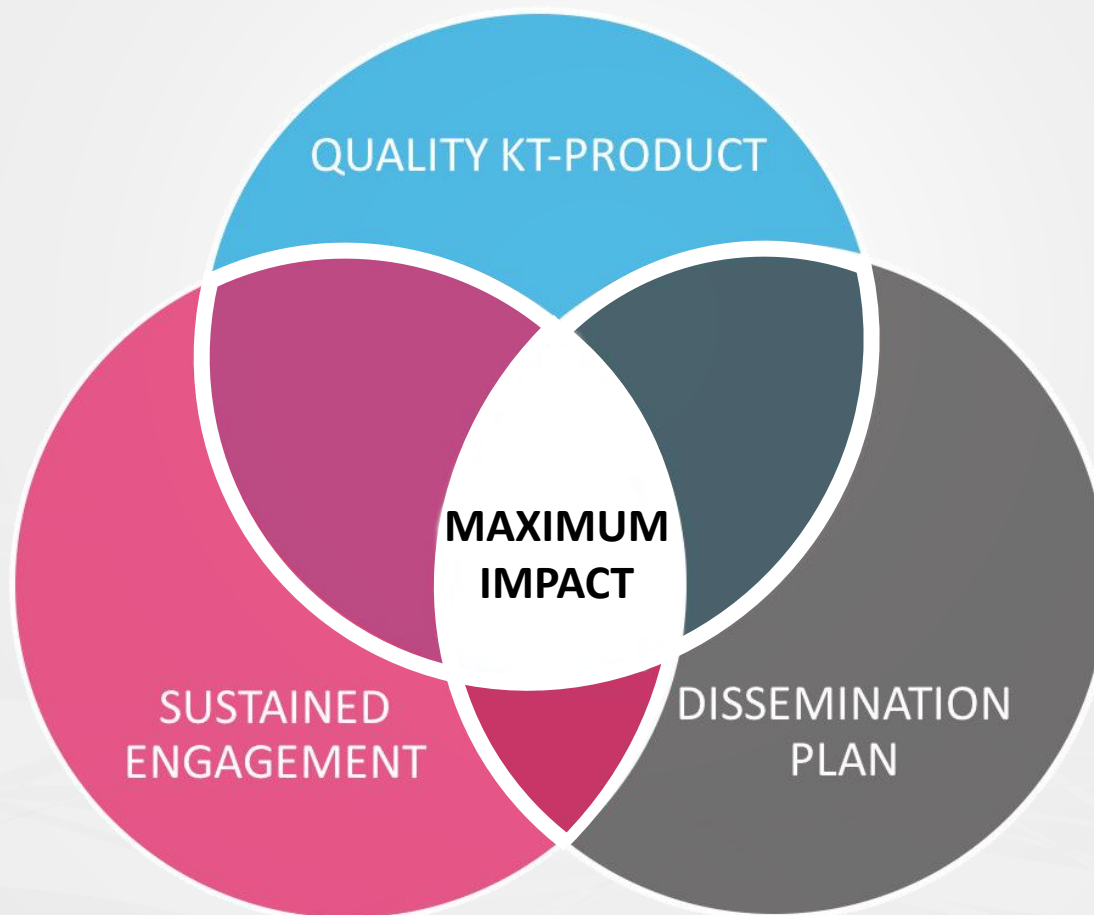


HIERARCHY OF IMPACT

# Individual level behavior change



# Video as a vehicle for knowledge mobilization?





# PROJECT TEAM

## Investigators:

Dr. Heather McKay, UBC (Co-Primary Investigator)  
Dr. Meghan Winters, SFU  
Dr. Joanie Sims-Gould, UBC

## City of Vancouver Partners:

Dale Bracewell, City of Vancouver (Co-Primary Investigator)  
Douglas Scott, City of Vancouver

## Community Partners:

West End Seniors' Network  
Seniors' Advisory Committee

## Project Staff:

Callista Haggis, MSFHR Knowledge Broker  
Suzanne Therrien, ASAP Project Manager  
Sarah Lusina- Furst, WTT Knowledge Broker

## WATCH THE FULL DOCUMENTARY:

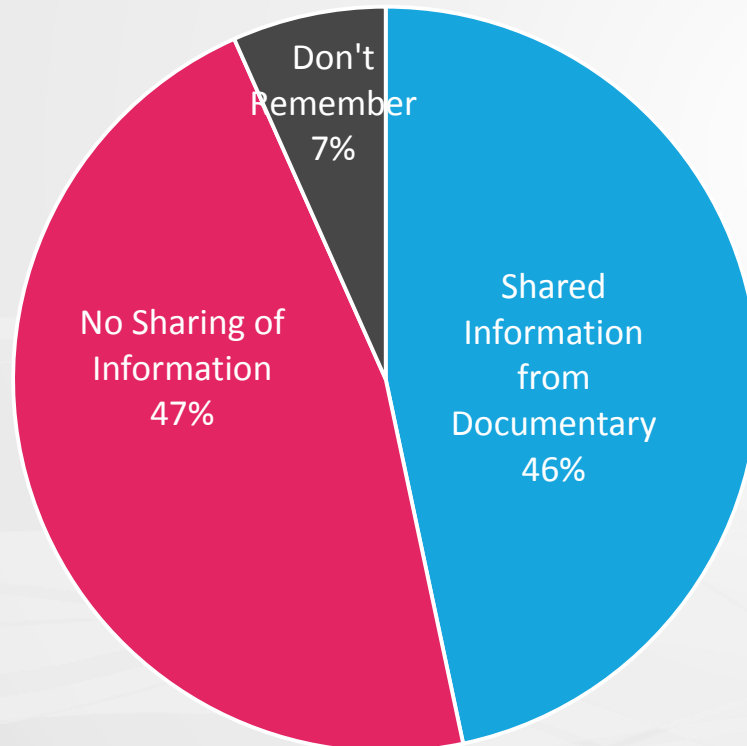
[www.shapethepath.ca](http://www.shapethepath.ca)

## FOLLOW US ON TWITTER:

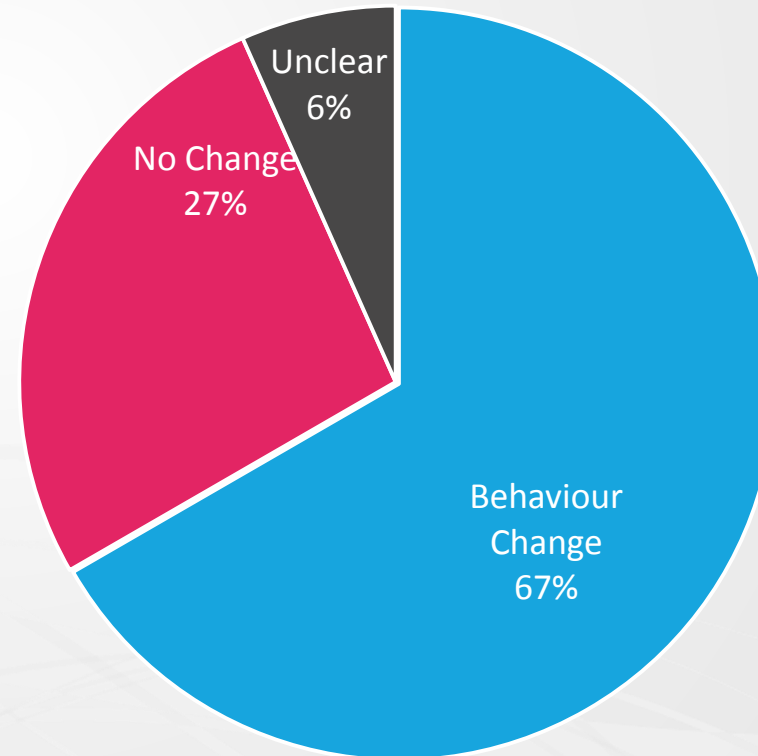
[@ShapeThePath](https://twitter.com/ShapeThePath)  
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# 2-9 Month Follow-Up

Information Diffusion

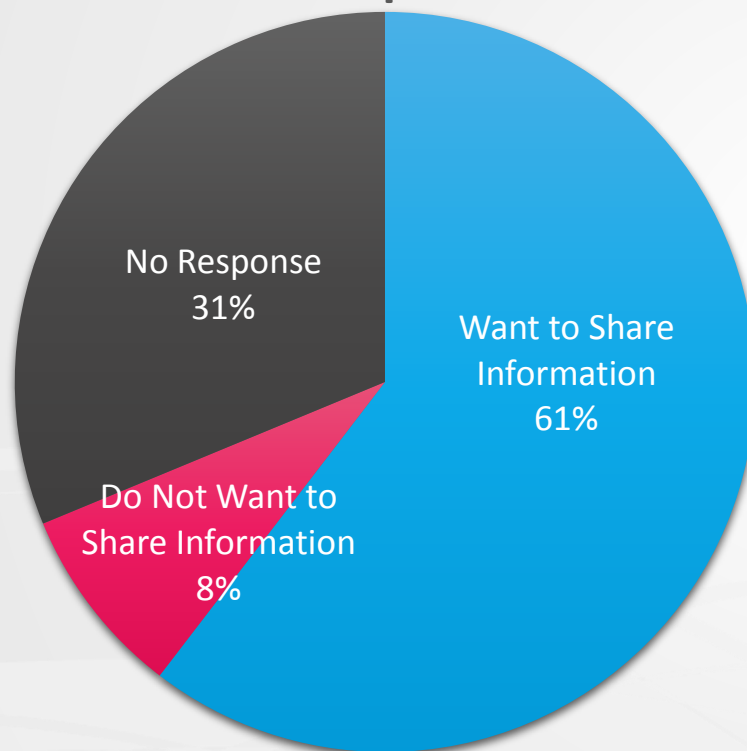


Behaviour Change

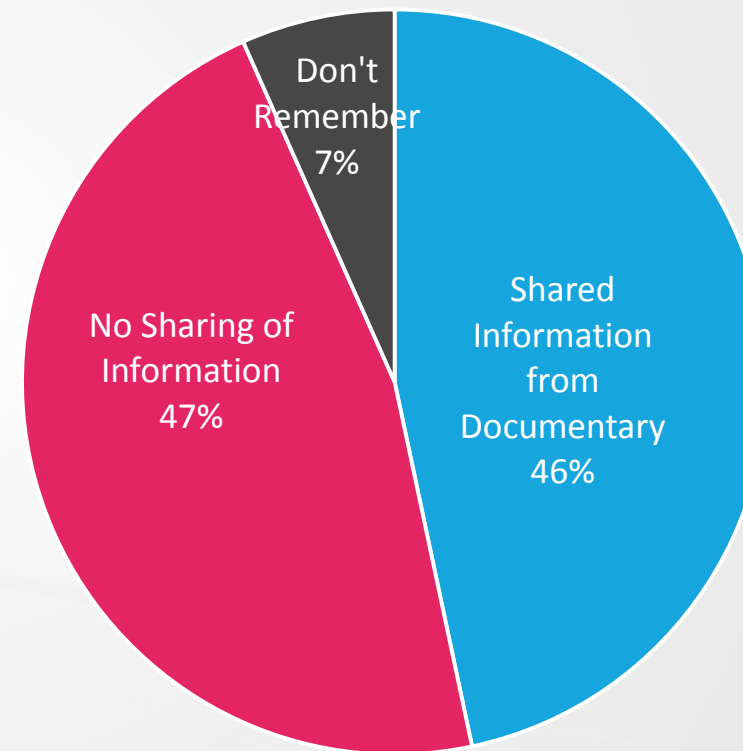


# 6 month follow-up: Information Diffusion

Initial Response



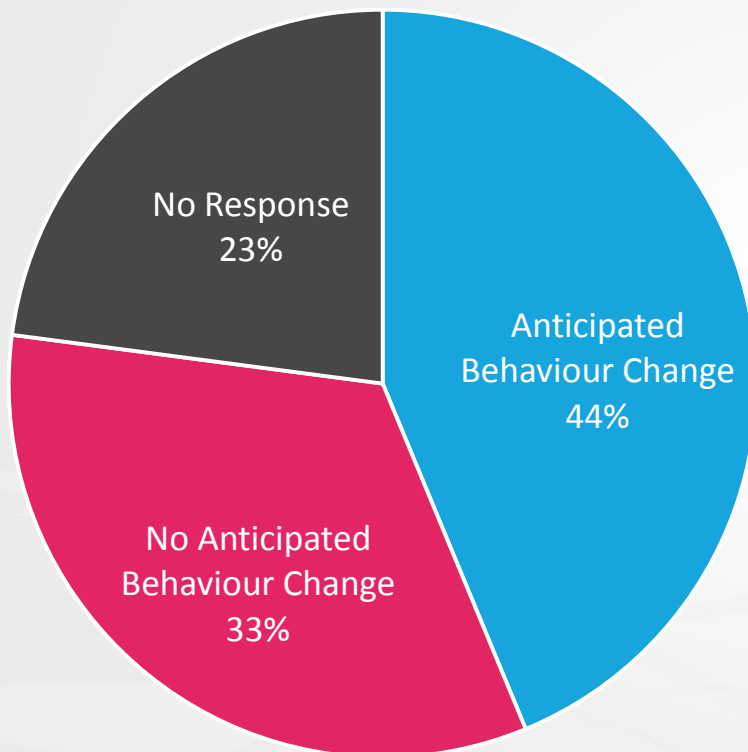
2-9 Month Follow-up



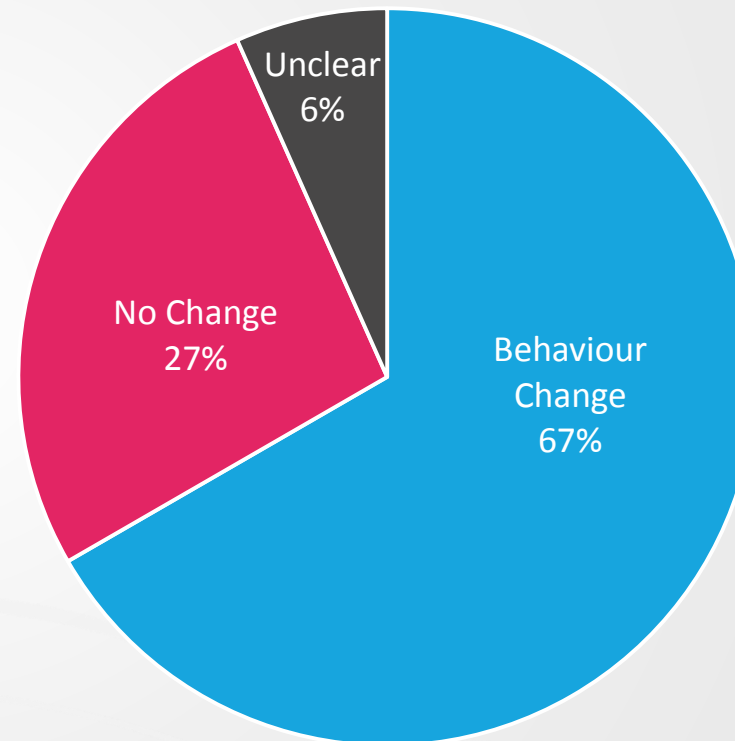


# 6-month follow-up: Behaviour Change

Initial Response



2-9 Month Follow-up





National Collaborating Centre  
for Methods and Tools

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# Overcoming Barriers to Evidence-Informed Decision-Making through Online Learning

**Maureen Dobbins, RN, PhD**

**Jeannie Mackintosh CERT**

**Jennifer Yost PhD, RN**

3rd Fuse International Conference  
on Knowledge Exchange in Public  
Health, Newcastle, UK April 2016

# Conflict of Interest Disclosure

- The National Collaborating Centre for Methods and Tools is supported financially by the Public Health Agency of Canada







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# NCCMT Products and Services

## Registry of Methods and Tools

**Networking and  
Outreach**

**Online Learning  
Opportunities**

**Multimedia**

**Workshops**

**Public Health+**



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# Online Learning Modules with NCCMT

- Housed within our Learning Centre at [www.nccmt.ca](http://www.nccmt.ca)
- Suite of modules to support Evidence-Informed Public Health





# Online Learning Modules: Features

- Free access from anywhere
- Relevant to public health
- Track your progress
  - monitor your learning and progress through the online learning modules
  - self-paced



# More Features

- **Interactive**
  - embedded learning objects
  - links to learning modules, online tools, glossary, references
- **Personalized report**
  - performance appraisal, college requirements, continuing education
- **Group registration**
  - social interaction, community learning

# Who is using the Modules?







First modules were launched in June, 2012:

- Accessed by 4,317 learners (to March 31, 2016)
- Users worked in 75 countries across the world
- 58% work in Canada, 23% work in USA
- Various roles in public health; the majority are students (32%) and public health nurses (20%)



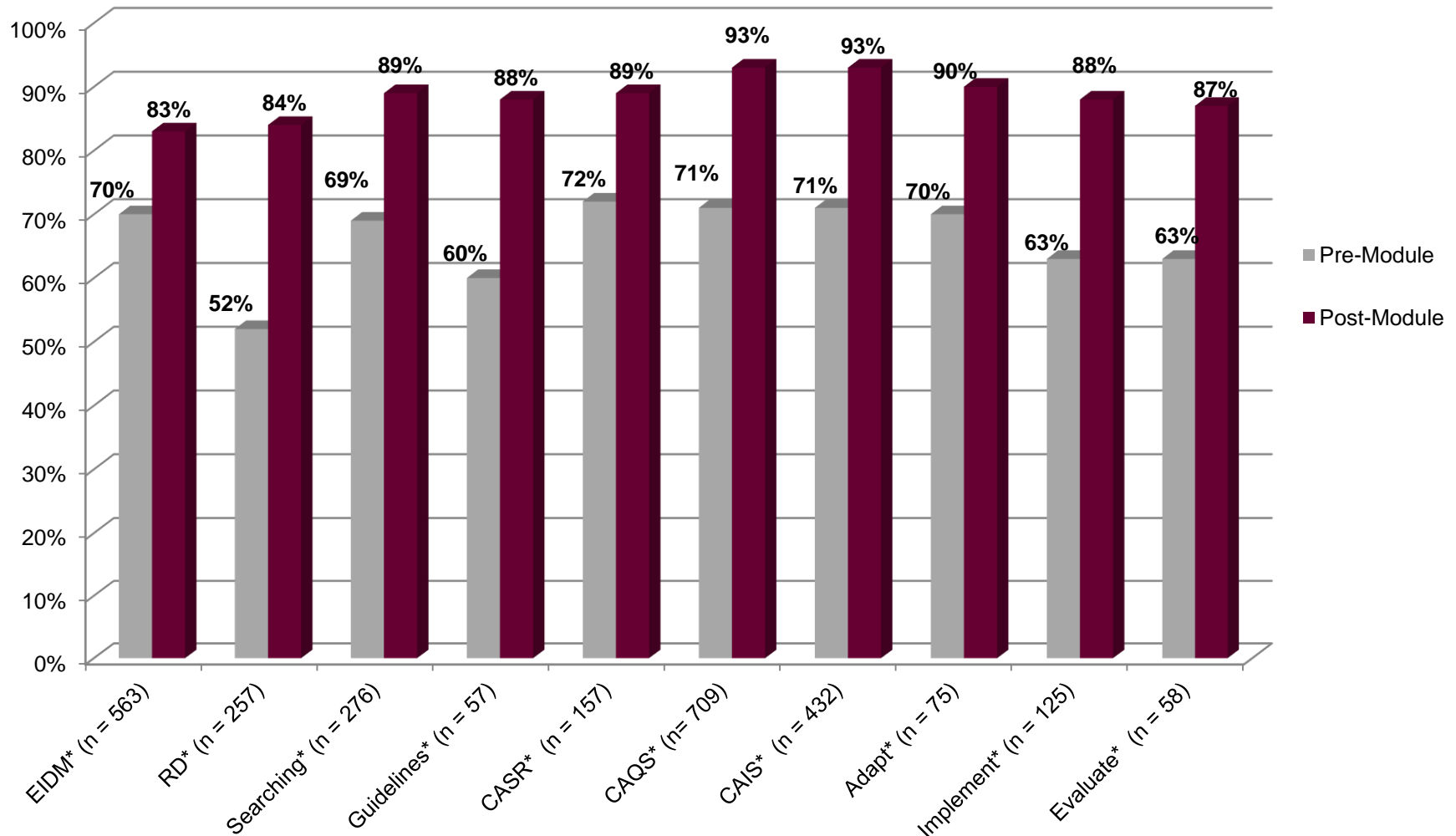
# Certificate of Competence Modules

## MODULES BY STEPS

		Estimated Time To Complete	DEFINE	SEARCH	APPRAISE	SYNTHESIZE	ADAPT	IMPLEMENT	EVALUATE
<a href="#"><u>Introduction to Evidence-Informed Decision Making</u></a>		4-5 hours							
<a href="#"><u>Quantitative Research Designs 101</u></a>		4-5 hours							
<a href="#"><u>Searching for Research Evidence in Public Health</u></a>		5-6 hours							
<a href="#"><u>Critical Appraisal of Guidelines</u></a>		6-8 hours							
<a href="#"><u>Critical Appraisal of Systematic Reviews</u></a>		6-8 hours							
<a href="#"><u>Critical Appraisal of Qualitative Studies</u></a>		6-8 hours							
<a href="#"><u>Critical Appraisal of Intervention Studies</u></a>		6-8 hours							
<a href="#"><u>Assessing the Applicability and Transferability of Evidence</u></a>		3-4 hours							
<a href="#"><u>Implementing KT Strategies in Public Health</u></a>		3-4 hours							
<a href="#"><u>Evaluating KT Strategies in Public Health</u></a>		3-4 hours							

# Certificate Module Outcomes: Knowledge

Changes in Knowledge from Pre- to Post- Module Completion



**\*Significant change  $P < 0.05$ ;** EIDM: Introduction to EIDM; RD: Quantitative Research Designs 101; Searching: Searching for Research Evidence in Public Health; Guidelines: Critical Appraisal of Guidelines; CASR: Critical Appraisal of Systematic Reviews; CAQS: Critical Appraisal of Qualitative Studies; CAIS: Critical Appraisal of Intervention Studies; Adapt: Assessing the Applicability & Transferability of Evidence; Implement: Implementing KT Strategies in Public Health; Evaluate: Evaluating KT Strategies in Public Health



# Statement of Completion Modules

## MODULES BY STEPS

EIDM Essentials: Key issues in evidence informed decision making

Introduction to Evidence-Informed Decision Making for Managers

Estimated Time  
To Complete

	DEFINE	SEARCH	APPRAISE	SYNTHESIZE	ADAPT	IMPLEMENT	EVALUATE
1 hour							
1 hour							



# Additional Outcomes for All Modules

- Changes in self-efficacy
- Over 50% of learners:
  - intend to complete other modules offered by NCCMT
  - will recommend this series of NCCMT online modules to a colleague
- Over 80% of learners agree or strongly agree that the:
  - modules are easy to access
  - modules are easy to navigate
  - modules are easy to understand
  - online format was an effective learning methods

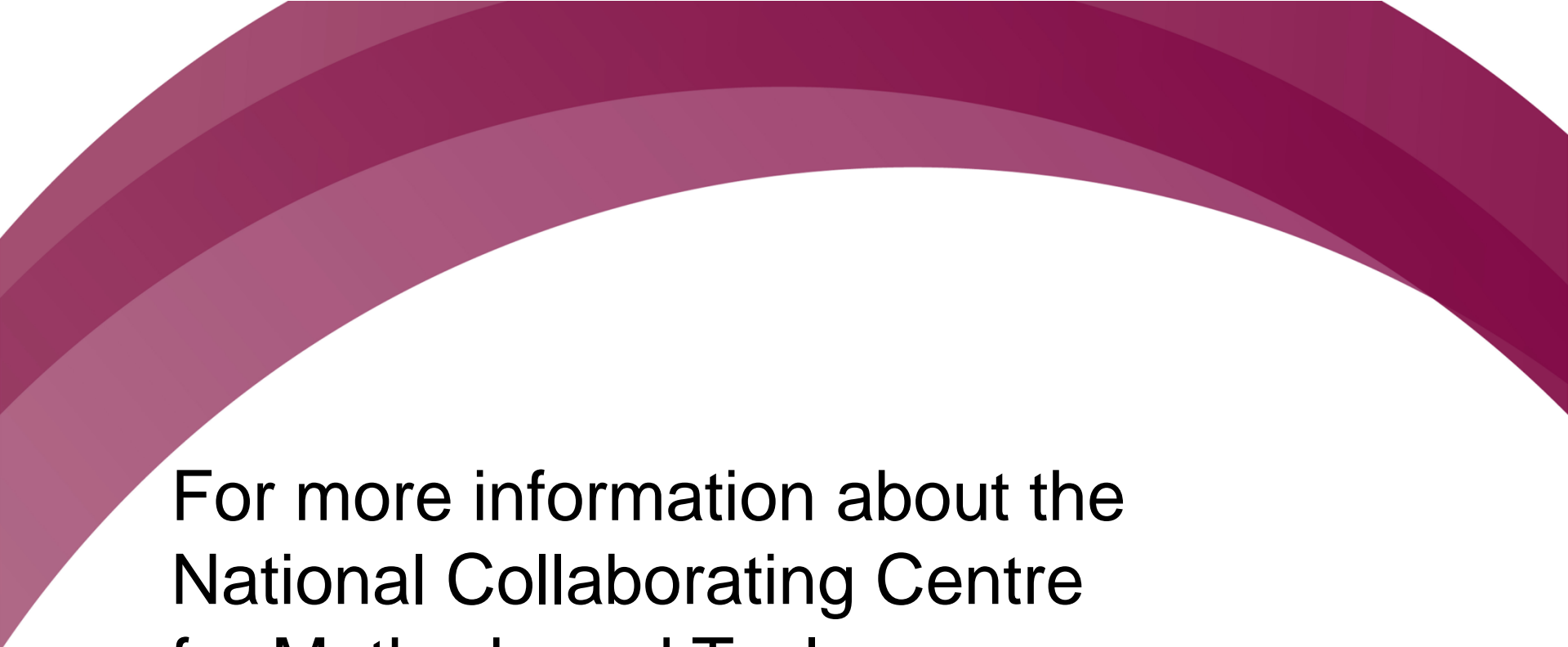
# Summary of Findings

*Online learning modules address barriers of time, limited resources and lack of skills by building capacity in a cost effective way.*

Effective resources to build KT capacity

Increase learner knowledge

Increase learner self-efficacy



# For more information about the National Collaborating Centre for Methods and Tools:

NCCMT website [www.nccmt.ca](http://www.nccmt.ca)

Contact: [nccmt@mcmaster.ca](mailto:nccmt@mcmaster.ca)