

Drawing room, 11.30-12.45

Assessment for funders

David Sweeney (Chair)

Cara Tannenbaum

Jonathan Adams

Cassidy Sugimoto

Assessment for funders

David Sweeney

*Executive Chair, Research England,
United Kingdom*

Assessment for funders

Cara Tannenbaum

*Scientific Director, Institute on Gender and Health,
Canadian Institute of Health Research (CIHR)*

Measuring the social impact of a funding-strategy: a GBA+ example

AESIS Impact of Science Meeting

Cara Tannenbaum, MD, MSc
Canadian Institutes of Health Research
June 14, 2018



I have 15 minutes to

1. **CONVINCE YOU:** That aligning funding strategies with **government policies and priorities *de facto*** achieves social impact
2. **SHOW YOU:** How CIHR created an action plan and evaluation framework around “gender-based analysis+” (GBA+)
3. **PROVE TO YOU:** That we are having social impact through structural change

**WHAT IS
GBA+
AND WHY DO
CANADIAN CITIZENS
CARE?**



Gender-based analysis helps to ensure that the development of Canadian policies, programs and legislation includes the consideration of differential impacts on diverse groups of women and men.



TAXPAYER \$\$\$

**INVESTED IN RESEARCH
HAS TO BENEFIT BOYS,
GIRLS, MEN, WOMEN
AND GENDER DIVERSE
PERSONS EQUALLY**

RAISE YOUR RIGHT HAND

IF YOU AGREE

THIS IS A SOCIALLY

MEANINGFUL GOAL

RAISE YOUR LEFT HAND

IF YOU THINK THIS

IS THE DEFAULT MODEL

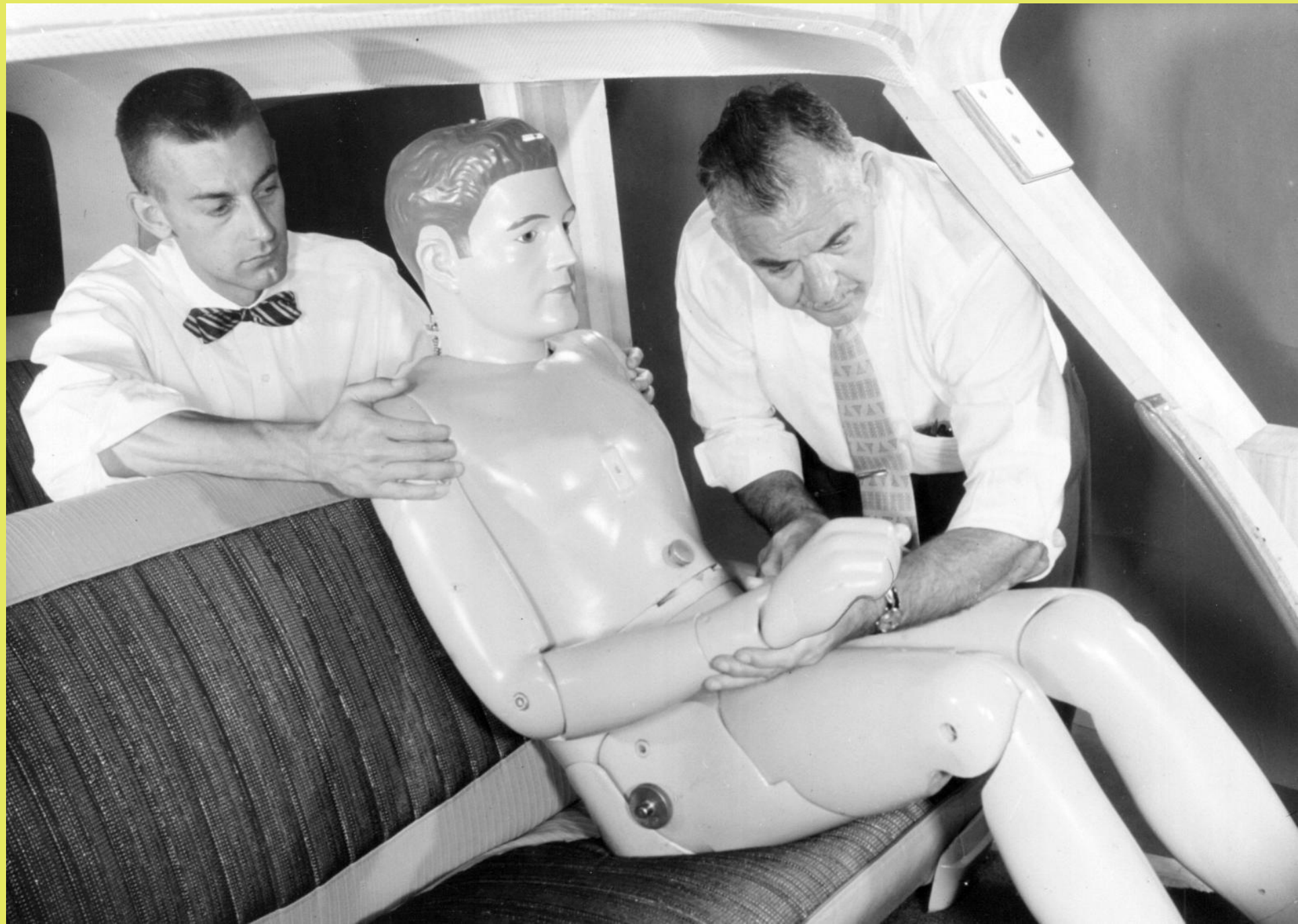
IN SCIENCE

CAR SAFETY RESEARCH

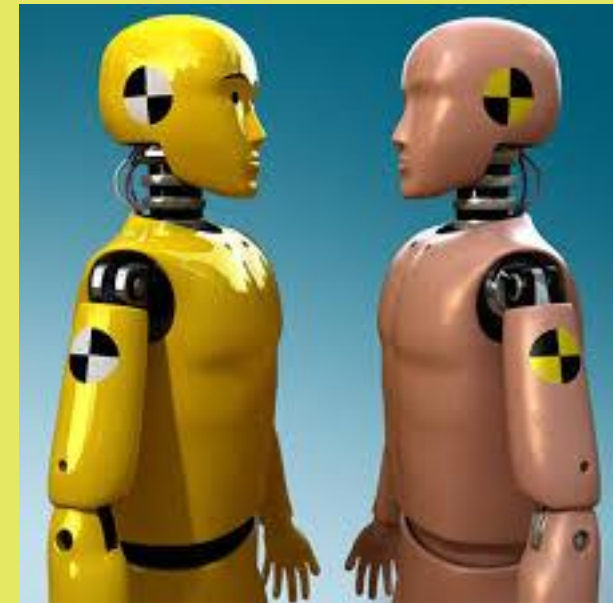
FIRST RECORDED AUTOMOBILE
FATALITY HAPPENED ON AUGUST 31,
1869 IN A TOWN IN IRELAND WHERE A
WOMAN LOST HER LIFE

NOT UNTIL 1934 THAT GENERAL MOTORS (GM) PERFORMED THE FIRST CAR CRASH TEST

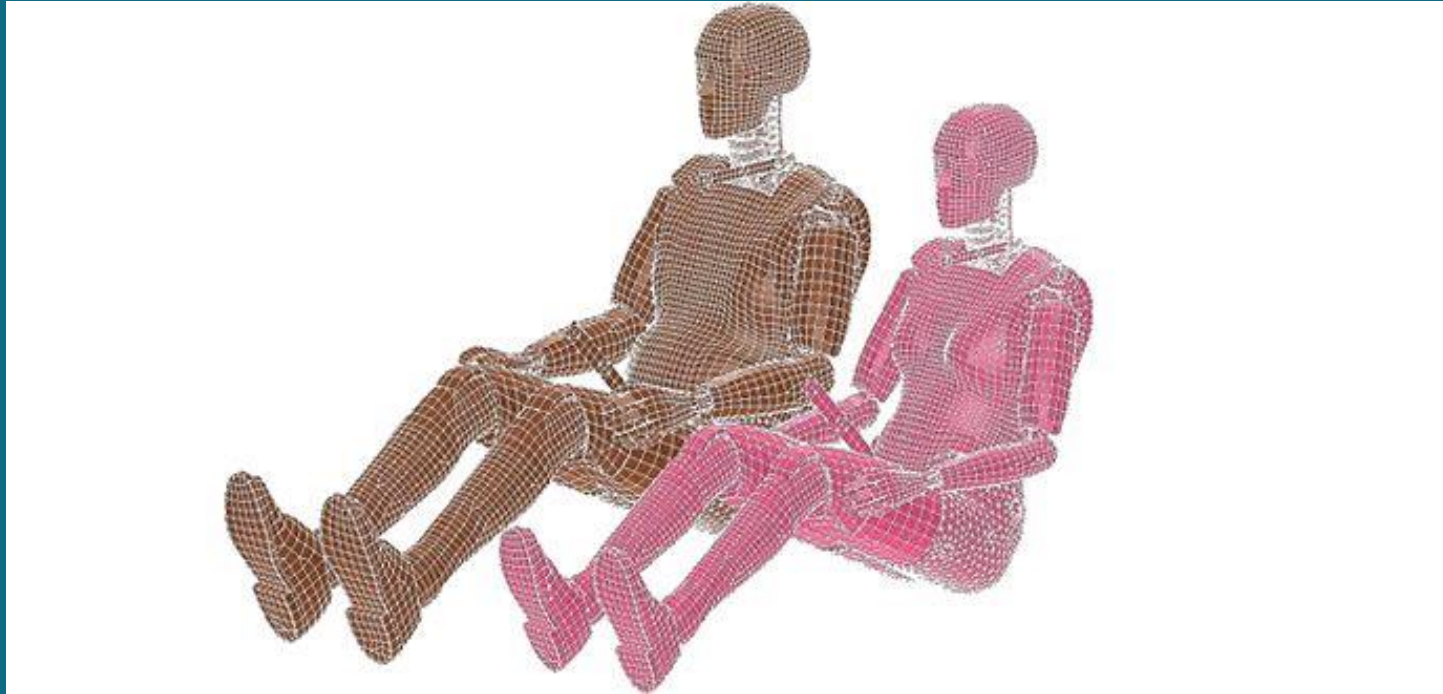




**FEMALE DRIVERS
WEARING A SEATBELT
HAVE A 47%
INCREASED
RISK OF SERIOUS
INJURY
COMPARED TO MALE
DRIVERS**



WOMEN ARE NOT JUST SMALL MEN



Because of biological sex women have different anatomy, smaller bones, lower bone density, and are more vulnerable to whiplash and pregnancy

Prescription drugs withdrawn from the US Market 1997-2000



of these drugs posed more of a threat for women.

HEALTH

November 2, 2016 7:00 am

Updated: November 2, 2016 11:47 am

Drugs aren't tested on women like they are on men, and it could have deadly consequences



By Leslie Young

National Online Journalist, Investigative Global News

Comments 41

Facebook 893

Twitter

Email

Print

...



Vanessa Young died at 15 after taking the drug cisapride while also suffering from bulimia. This drug has since been found by a US government body to be more dangerous for women.

Courtesy, Terence Young

Why is the male the default model in science?

- Historically, science only conducted with male animals
Females “too complicated”
- For ethical reasons, women were excluded too
Pregnancy risks, e.g. thalidomide



80%
male mice

20%
female mice

**WHAT FUNDING STRATEGY
WOULD YOU PUT IN PLACE
TO PROMOTE RESEARCH
THAT BENEFITS MEN,
WOMEN AND GENDER
DIVERSE PEOPLE?**

CIHR's 5-STEP STRATEGY

① MEASURE AND MONITOR

② BUILD CAPACITY

③ INCENTIVIZE

④ COACH

① AUDIT OUTPUTS

MEASURE & MONITOR


CIHR MANDATORY REPORTING POLICY



STARTING IN 2010 WE ASKED ALL APPLICANTS:

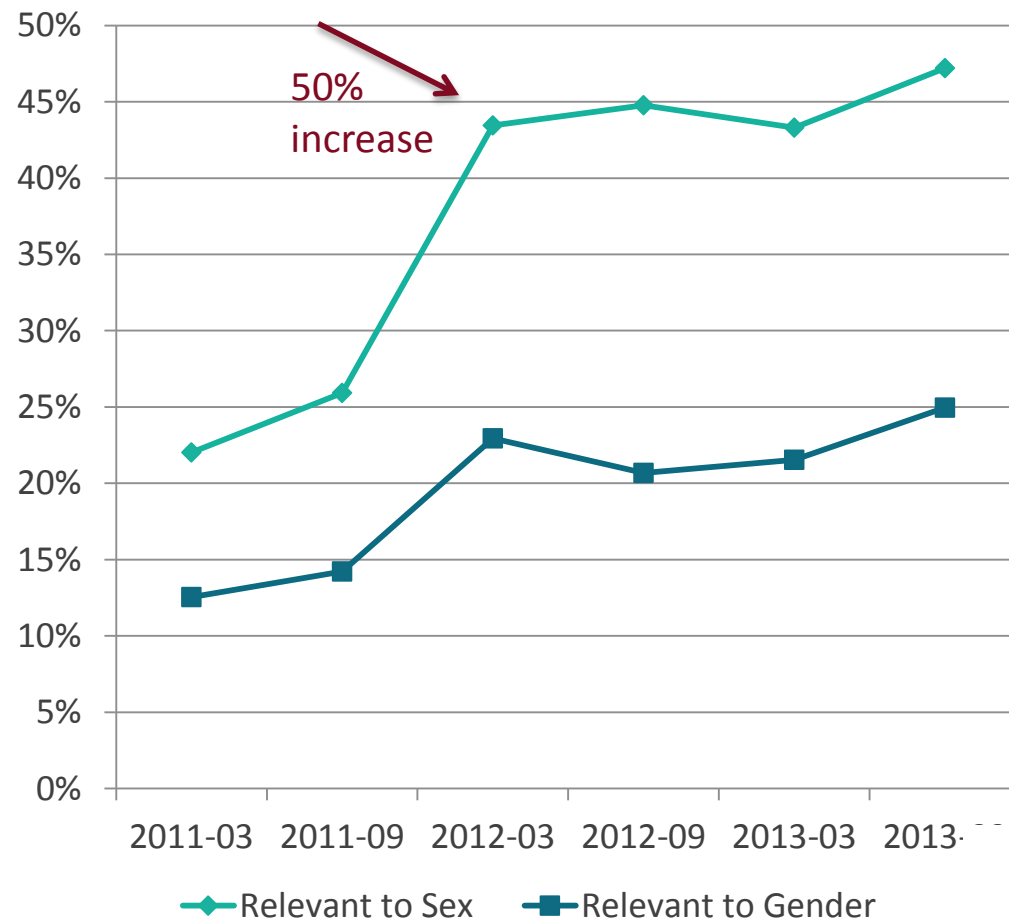
Are sex (biological) considerations taken into account in this study?*

Are gender (socio-cultural) considerations taken into account in this study?*

If YES please describe how sex and/or gender considerations will be considered in your research design. *
If NO please explain why sex and/or gender are not applicable in your research design.*
(2000 character limit) 

<p>55% of clinical, health systems and population health researchers said</p> <p>YES</p>	<p>19% of fundamental scientists said</p> <p>YES</p>
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TAKE HOME MESSAGE #1: TRANSPARENT REPORTING INCREASES RESEARCHER ACCOUNTABILITY



Johnson et al. PLoS One 2014.

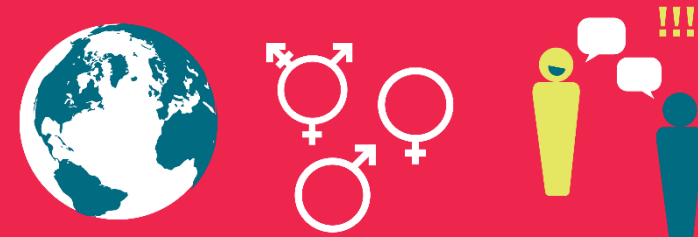
MANDATORY REPORTING IS A GOOD START BUT NOT ENOUGH

- ✓ Build capacity
- ✓ Incentivize
- ✓ Train peer reviewers

① Biomedical Research



② Primary Data Collection with Human Participants



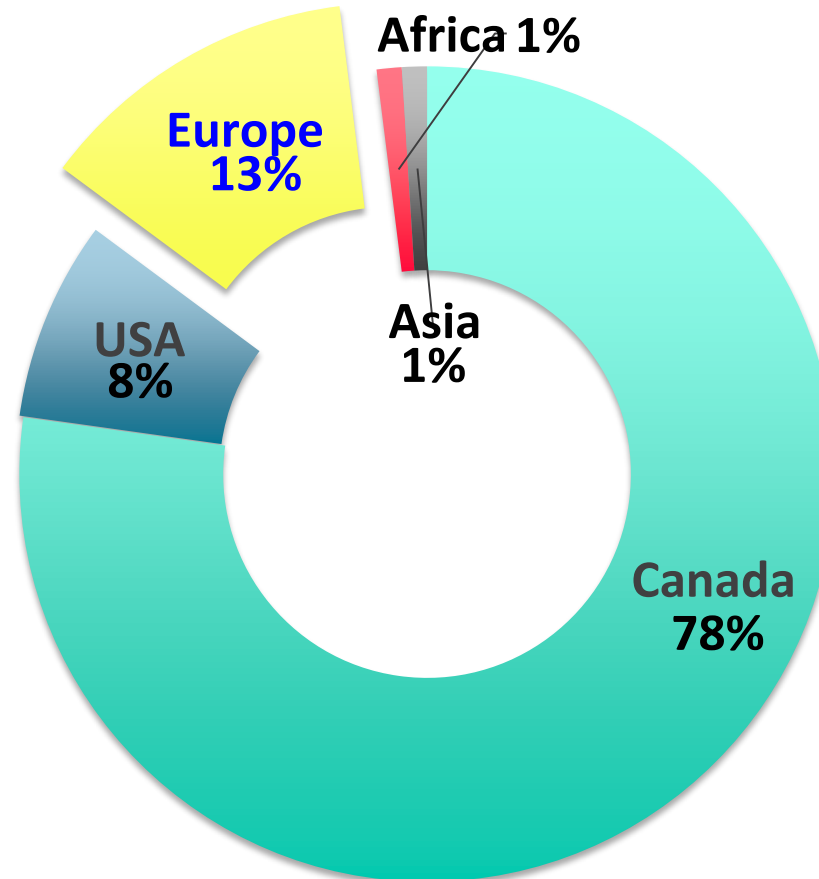
③ Analysis of Data Collected from Human Participants



Online training modules available at
www.discoversexandgender.ca

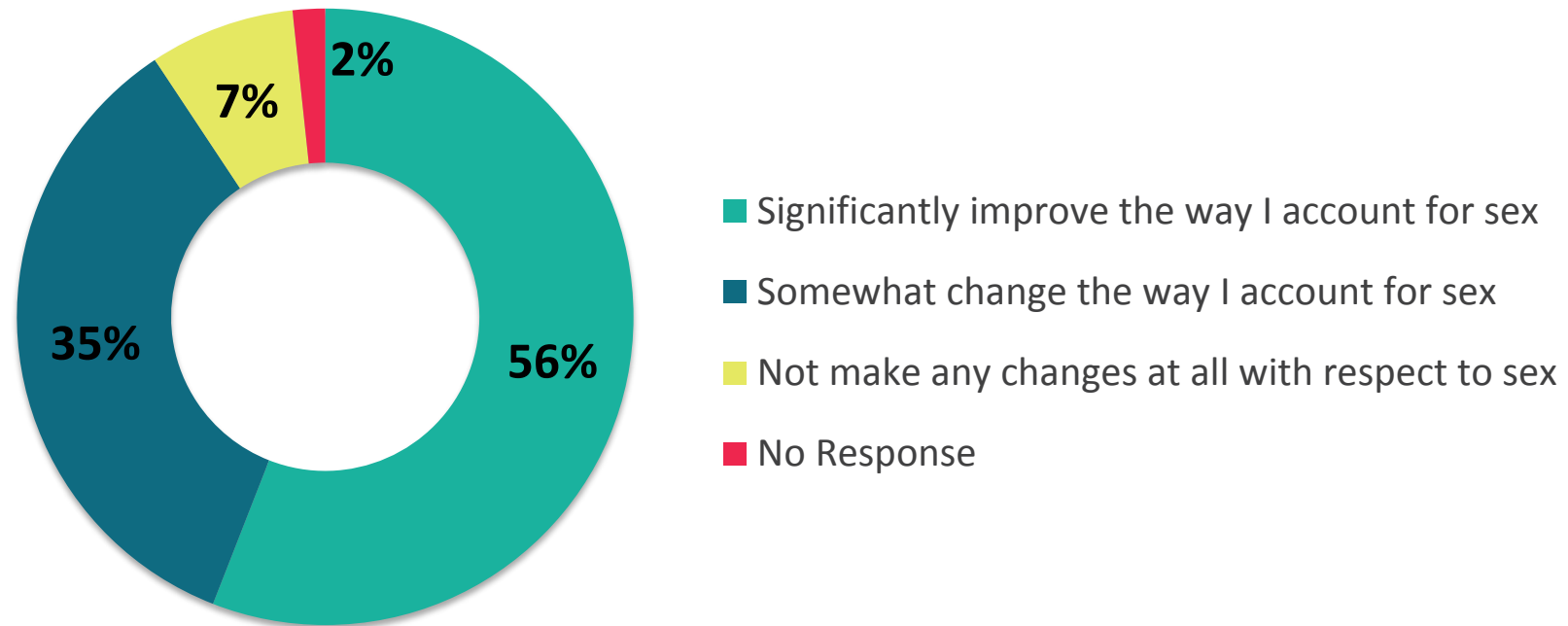
Is online training effective for changing behavioural intent internationally?

- 1000 completers

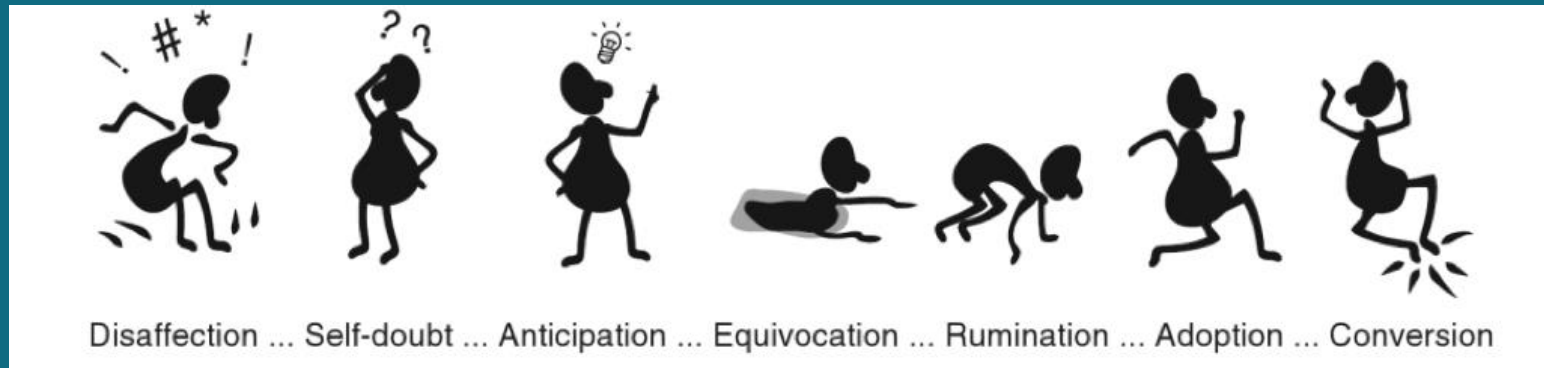


Behaviour-Change Intentions

- With respect to the approach I use in my own research program and publications for integrating sex and gender, I intend to:



FUNDING INCENTIVES



PERSONALIZED HEALTH CATALYST GRANTS

INCLUDING SEX-DRUG-GENE RELATIONSHIPS



The [Personalized Health Catalyst Grants funding opportunity](#) is intended to:

- Optimize patient empowerment in personalized health-care approaches;
- Develop data integration and analysis tools that will optimize personalized health interventions;
- Assess the value of personalized healthcare for effective implementation and delivery; and
- Increase researcher awareness about the importance of integrating [sex- and gender-based analysis](#) in assessing relative costs and benefits.

Research Areas:

- Identification of **sex-drug-gene relationships** associated with potential harm and benefit;
- Development of novel e-health apps in the field of personalized medicine; and
- The development of predictive analytic models that can stratify patients by expected outcome and risk.

All principal investigators will be required to take one or more of the Institute of Gender and Health's [online core competency modules](#) in integrating sex and gender in health research.



CIHR IRSC

CIHR INSTITUTE OF
GENDER AND HEALTH

SHAPING SCIENCE FOR A HEALTHIER WORLD

This is to certify that

Steve Robinson

has successfully completed the CIHR Institute of Gender and Health
Core Competency Module on Sex and Gender in Pre-Clinical Research.

TO BE ELIGIBLE FOR FUNDING, YOU MUST SUBMIT YOUR CERTIFICATE OF COMPLETION

Cara Tannenbaum, Scientific Director - IGH



CIHR IRSC

TEAM GRANT: IMPACT OF GENDER ON KNOWLEDGE TRANSLATION INTERVENTIONS



NEW FUNDING OPPORTUNITY

The [Institute of Gender and Health](#) is pleased to announce a [new team grant](#) aimed at generating evidence about **if and how applying a gendered lens could improve the effectiveness of [knowledge translation](#) interventions.** [Click here for the full funding opportunity.](#)

A [Sex and Gender Champion](#) will be required on all funding applications.

The integration of sex and gender throughout all phases of the health research cycle has increased over the past two decades. While the integration of gender is slowly making its way into health research, it has yet to infiltrate thinking in the practice and science of translating research knowledge into evidence-based practice.

Transparent reporting and education are effective

SEX AND GENDER ACROSS CIHR PILLARS

Increase in the proportion of CIHR successful open competition applications reporting plans to integrate sex and/or gender (2010 compared with 2016).

BASIC SCIENCE RESEARCH

55%

Up from 19%



CLINICAL RESEARCH

82%

Up from 56%



HEALTH SYSTEMS RESEARCH

86%

Up from 46%



POPULATION HEALTH RESEARCH

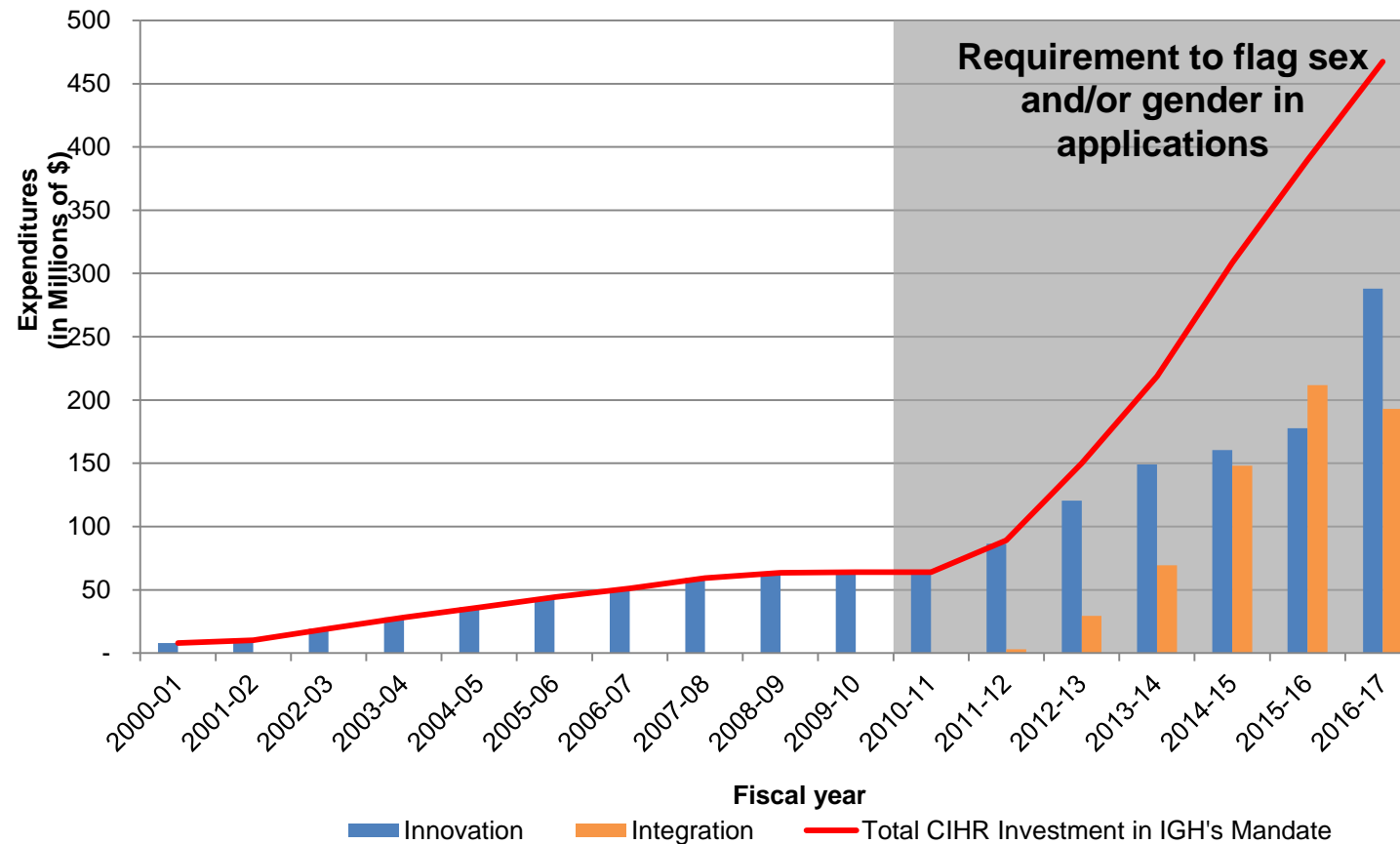
90%

Up from 79%



How does CIHR track investments in GBA+?

- Since CIHR implemented mandatory reporting in 2010-2011, we've seen a sharp increase in CIHR investment in research accounting for sex and gender



A FEW
SOCIAL IMPACT
STORIES

WHAT HAPPENED IN BASIC SCIENCE

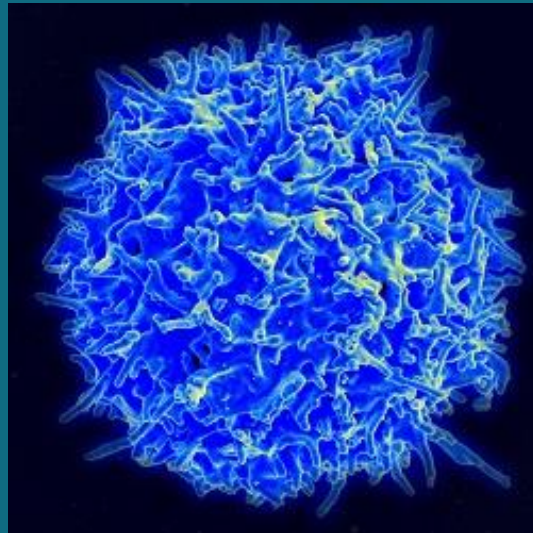
- 22 identical pairs of chromosomes, 1 sex chromosome
- The X-chromosome has 1669 genes
- The Y-chromosome has 426 genes



Including males and females leads to new discoveries

Completely different immune cells regulate
spinal cord nerve function

Female Mice – T Cells



Male mice – Microglial Cells



Sorge et al. Different immune cells mediate mechanical pain hypersensitivity in male and female mice. Nat Neuroscience 2015; 31:1165-1167.

PUTS US ON
THE VERGE
OF CURING
THE
MAN COLD

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Men's health

Stop accusing men of overreacting - 'man flu' really does exist, doctor claims

A somewhat tongue-in-cheek BMJ article argues that men might experience worse cold and flu symptoms than women, and explores possible explanations



▲ Dr Sue argues that research points towards men having a weaker immune response to common viral respiratory infections and the flu. Photograph: Alan Thornton/Getty Images

DEVELOPMENT OF SEX-SPECIFIC DRUG DOSES AND TREATMENTS

Men – 50 μ g dose



Women – 25 μ g dose





+

HEALTHCARE IS BASED
ON THE MALE BODY

TREAT ME LIKE A LADY

WOMEN
INC
●

INVESTING IN KNOWLEDGE TRANSLATION

HACKING THE KNOWLEDGE GAP: WOMEN'S HEART HEALTH



#HERHEARTHERSTORY

**WHAT ABOUT
GENDER ISSUES?**



The Canadian Trans Youth Health Survey

Funded by CIHR-IGH

PI: Elizabeth Saewyc



Stigma & Resilience Among Vulnerable Youth Centre

<http://www.saravyc.ubc.ca/reports-resources/community-reports/>



Findings: Discrimination and Mental Health



- 2 in 3 youth reported discrimination because of their gender identity
- 70% experienced sexual harassment:
 - 36% physical assaults
 - almost 50% cyberbullied
- 66% had self-harmed in the past year
 - more than 1 in 3 attempted suicide

School Reform in Canada



- Passing of School Boards' transgender identity inclusion policies
 - Extra-curricular support groups
 - Training teachers, counselors and administrators
 - Awareness campaigns and education for students
 - Making gender-neutral change rooms and bathrooms available
- Need for better outreach and support for families to be able to feel safe at home
- Knowledgeable and accessible health care services



CAMH to 'wind down' controversial gender identity clinic services

SHERYL UBELACKER

TORONTO

THE CANADIAN PRESS

PUBLISHED DECEMBER 15, 2015

UPDATED JANUARY 29, 2017

The Centre for Addiction and Mental Health is "winding down" its gender identity services for children and youth after an external review found its approach was out of step with currently accepted practice.

Reparative, or conversion, therapy discourages those who identify as transgender from embracing their non-biological sex.

"We want to apologize for the fact that not all of the practices in our childhood gender identity clinic are in step with the latest thinking," he said.

GBA+ Monitoring at CIHR

- As required by Government of Canada policy, CIHR considers Equity Diversity and Inclusion (EDI) and Gender-based Analysis plus (GBA+) in its performance measurement, reporting and evaluation activities
- GBA+ has been incorporated in the development of CIHR's Departmental Results Framework (DRF) and corresponding Performance Information Profiles (PIPs) to monitor the integration of sex and gender in health research
- As part of CIHR's ministerial reporting requirements, CIHR is reporting on GBA+ to show how both planned and actual results help achieve the government-wide priorities of gender equality, diversity and inclusiveness

TO RECAP... HOW CIHR MEASURES SOCIAL IMPACT



Research must align with social priorities



Measurement, coaching and incentives help



Embedding deliverables in funding agency's reporting mechanisms ensures accountability

QUESTIONS?



Assessment for funders

Jonathan Adams

*Director of the Institute for Scientific
Information, Clarivate Analytics, USA*

Assessment for funders

Experience with HEFCE REF impact case studies and with medical research charities

Jonathan Adams Director ISI

14 June 2018, AESIS - Ottawa

How can funders judge their impact?

Funders' objectives

- Met through success in stimulating impact in the research they fund
- But distanced from the implementation of that impact
- Reporting systems are required to capture (and validate?) project impacts

UK HEFCs - REF impact case studies

- One templated national process across 150 universities and 36 subject panels (UOAs)
- Some lack of conformity to structure
- Huge diversity in impact potential and achievement
- Challenging system for gathering consistent and comparable indicators

Medical research charities

- Well defined (often niche) mission and objectives
- Sustained relationship with funded researchers
- Specific expectations and accountability requirements

Web of Science
Trust the difference



Assessment for funders

Cassidy Sugimoto

*Associate Professor of Informatics,
Indiana University, USA*

OPEN ACCESS MANDATES: COMPLIANCE BY FUNDERS

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Vincent Larivière

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Université 
de Montréal



 INDIANA UNIVERSITY

Why OA as a success metric?

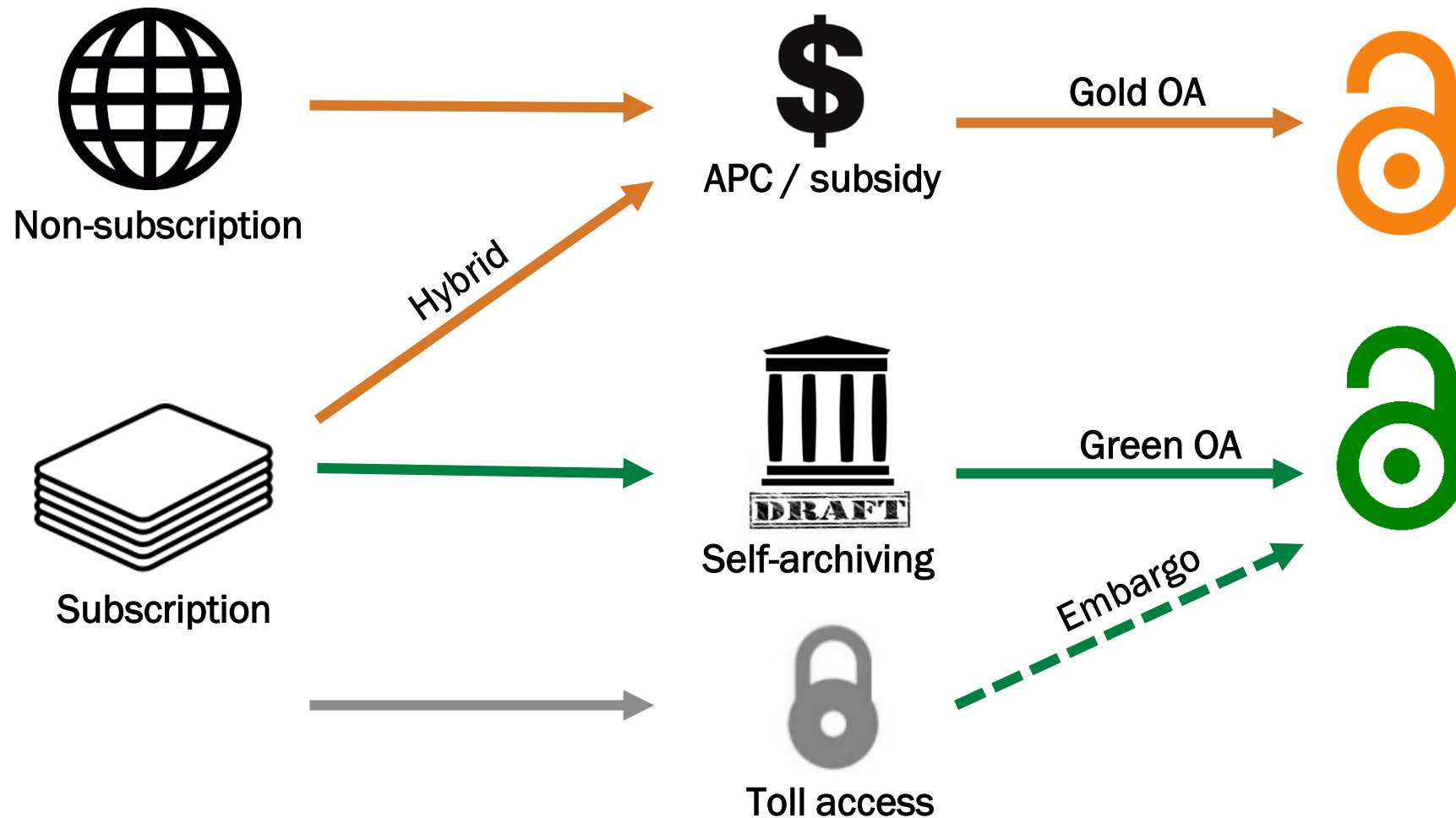


OPEN ACCESS: BENEFITS

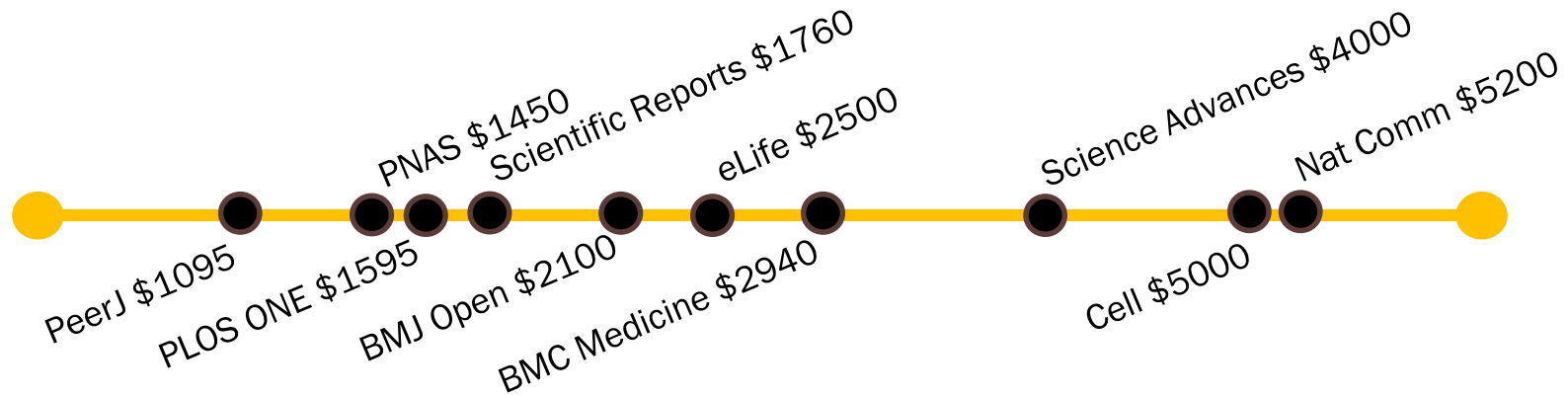


(Ashton University Library Services)

Routes to open access



APCs and gold OA options

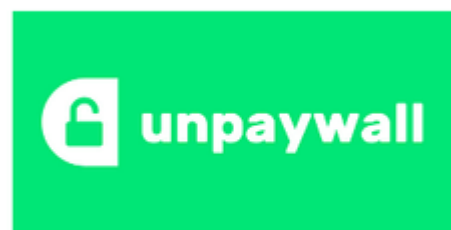


\bar{x} Springer: \$2,093
Elsevier: \$2,249

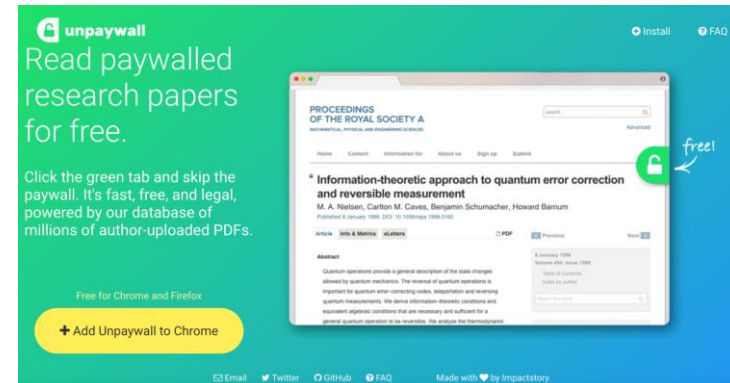
Green OA policies *(ROARMAP, 2018)*

OA policy	N. Publishers	%
Pre evaluated and post evaluation versions	497	32
Post evaluated version only	508	33
Pre evaluated version only	109	7
Forbidden	432	28

OA miners



Unpaywall



(Apr. 2018: 95M)

Unpaywall analysis (Piwowar et al., 2018)

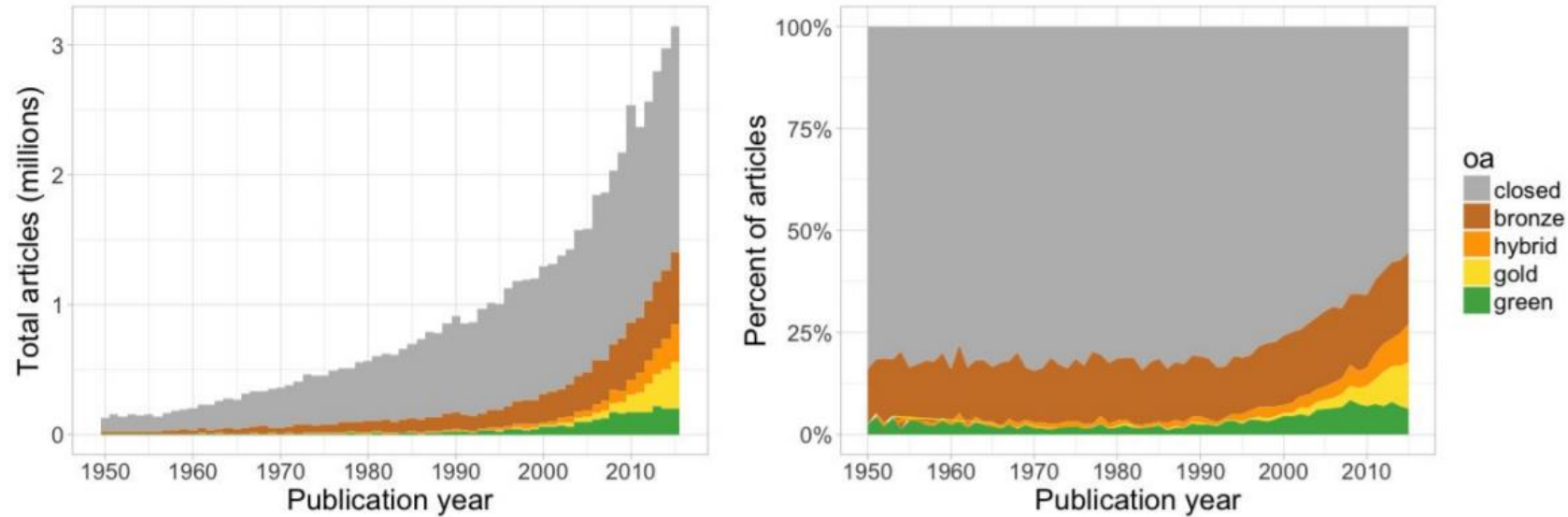
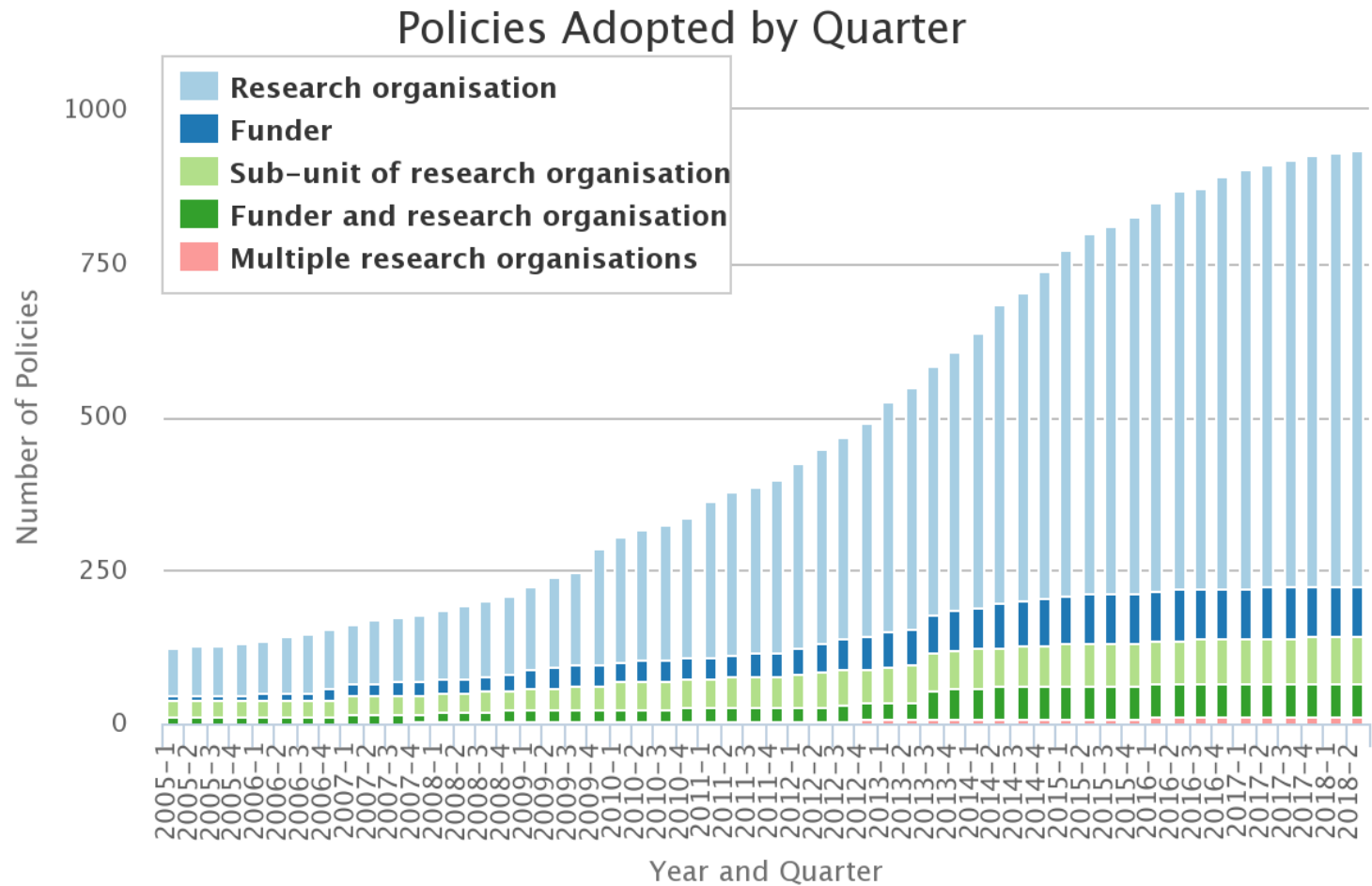
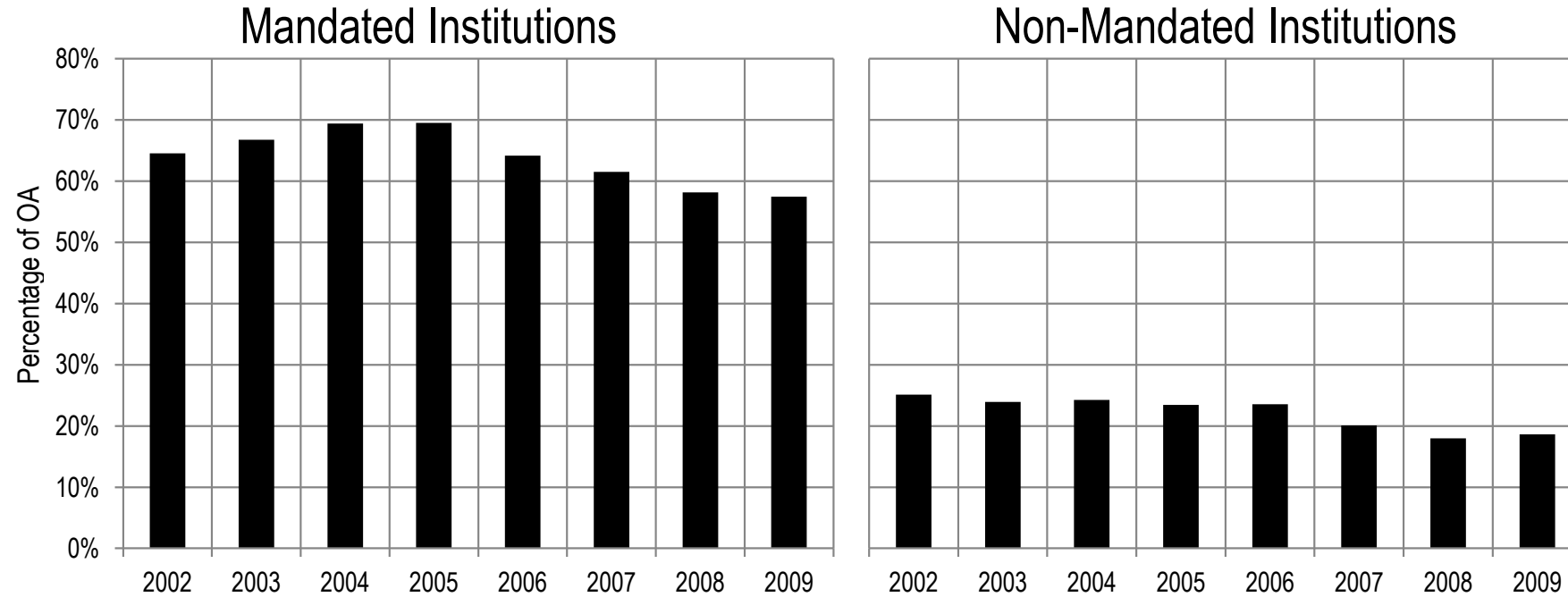


Figure 2: Number of articles (left panel) and proportion of articles (right panel) with OA copies, estimated based on a random sample of 100,000 articles with Crossref DOIs

Rise in mandates *(ROARMAP, 2018)*



Effect of mandates *(Gargouri et al., 2012)*



Mandating open access



DESCRIPTION

Higher flexibility
Greater heterogeneity

LEVERS

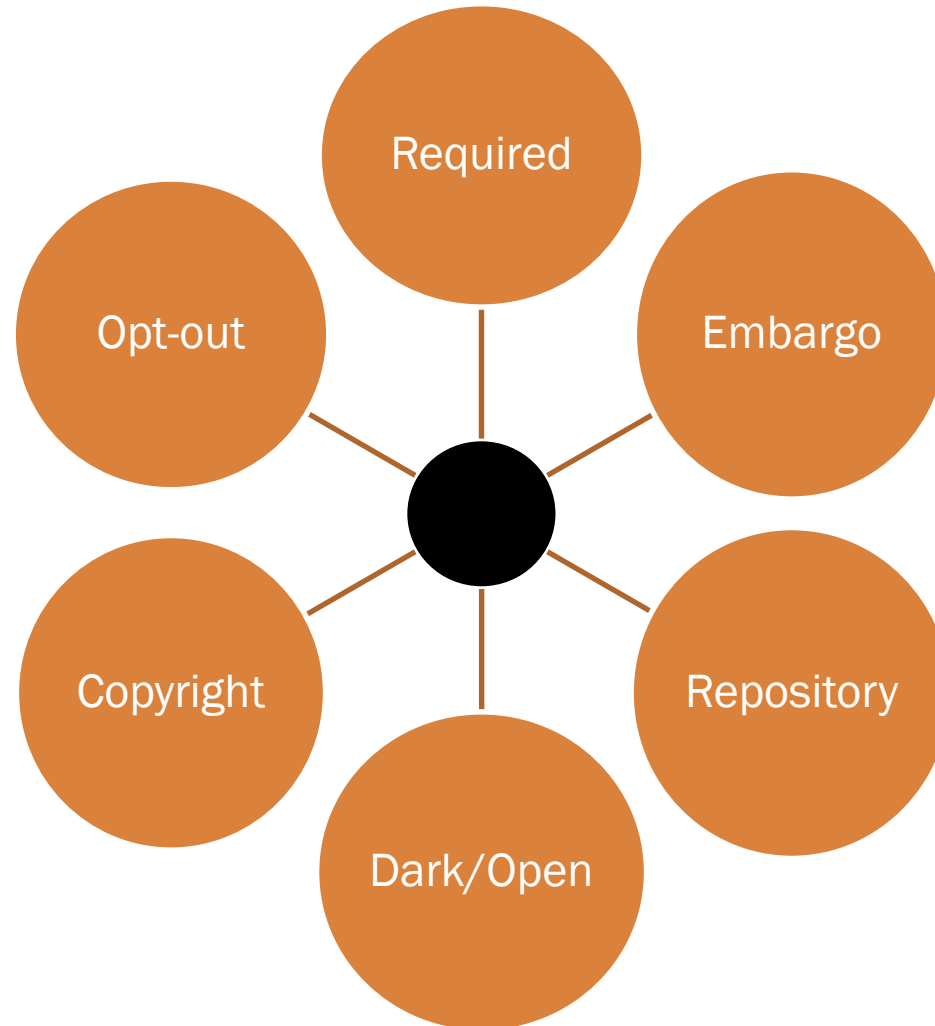
Evaluate faculty
(e.g., University of Liège)



Higher restrictions
Use of embargos

Withhold funding
(e.g., NIH)

Characteristics of mandates



Sample of funder mandates



BILL &
MELINDA
GATES
foundation



SSHRC  CRSH
Social Sciences and Humanities Research Council of Canada
Conseil de recherches en sciences humaines du Canada



EPSRC

Engineering and Physical Sciences
Research Council

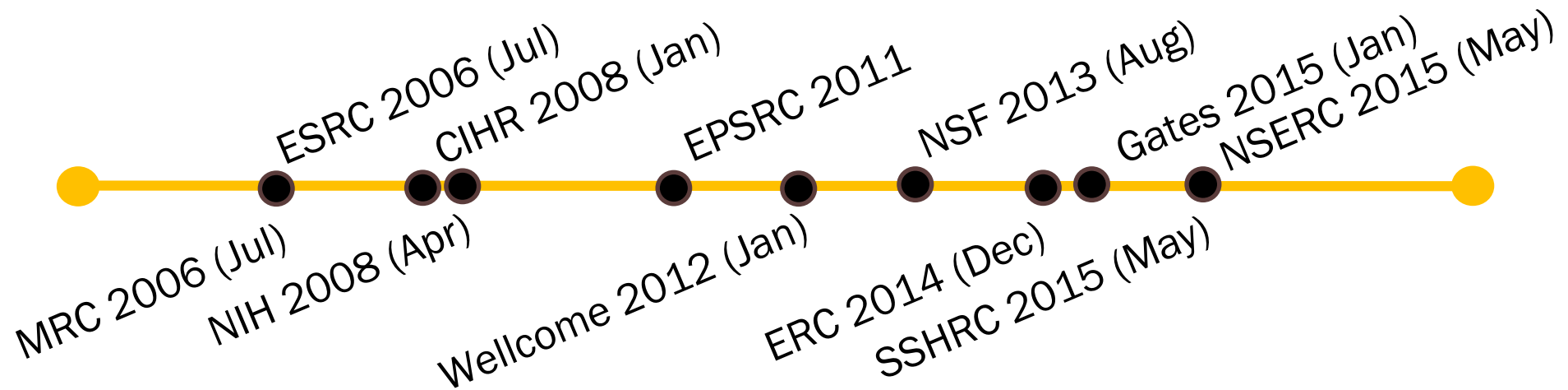


wellcome



European
Research
Council

Policy effective dates



Calculating compliance

Web of Science

Search Search Results

IU-Link Free Full Text from Publisher Look Up Full Text NCBI

The Academic Advantage: Gender Disparities in Patenting

Associated Data

By: Sugimoto, CR [Sugimoto, Cassidy R.]¹; Ni, CQ [Ni, Chaoqun]²; West, JD [West, Jevin T] [View ResearcherID and ORCID](#)

PLOS ONE
Volume: 10 Issue: 5
Article Number: e0128000
DOI: 10.1371/journal.pone.0128000
Published: MAY 27 2015
Document Type: Article
[View Journal Impact](#)

Keywords
KeyWords Plus: SCIENCE; WOMEN; ENTREPRENEURSHIP; GAP


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+ [5] Univ Quebec, CIRST, OST, Montreal, PQ H3C 3P8, Canada
E-mail Addresses: vincent.lariviere@umontreal.ca

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Canada Research Chairs program	
Fonds de Recherche du Quebec-Societe et Culture (FRQSC)	
Social Sciences and Humanities Research Council of Canada	
NSF-SciSIP Program	

[View funding text](#)

Document object identifier (DOI)



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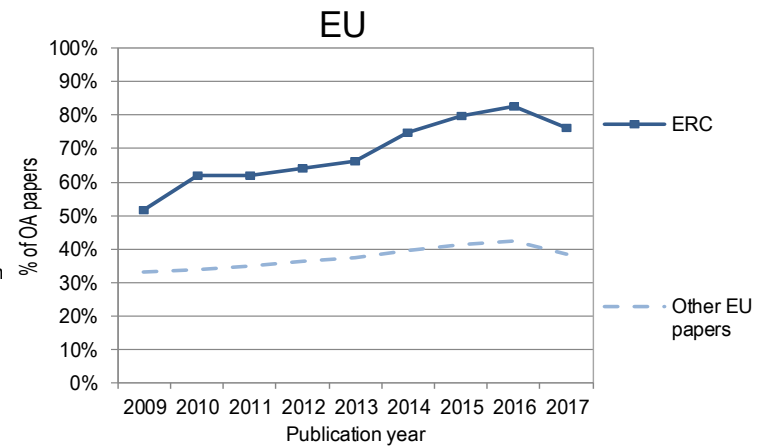
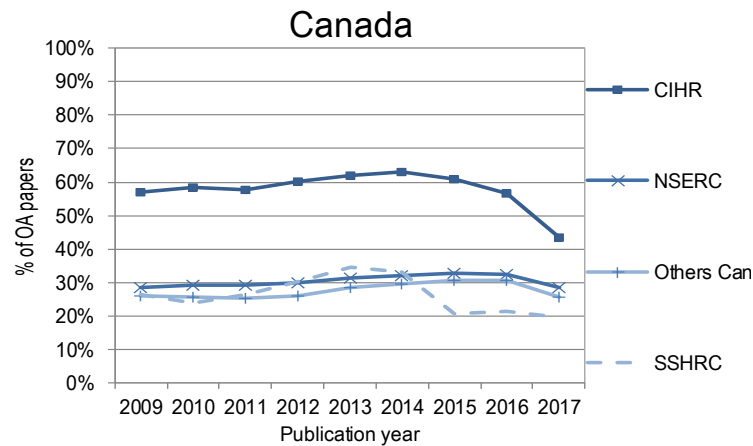
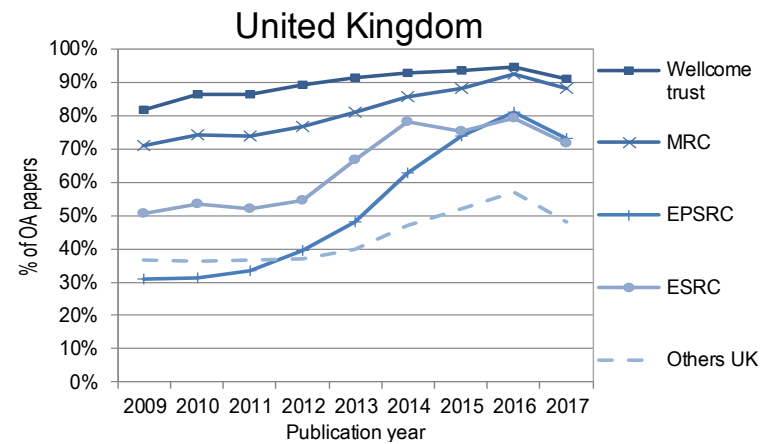
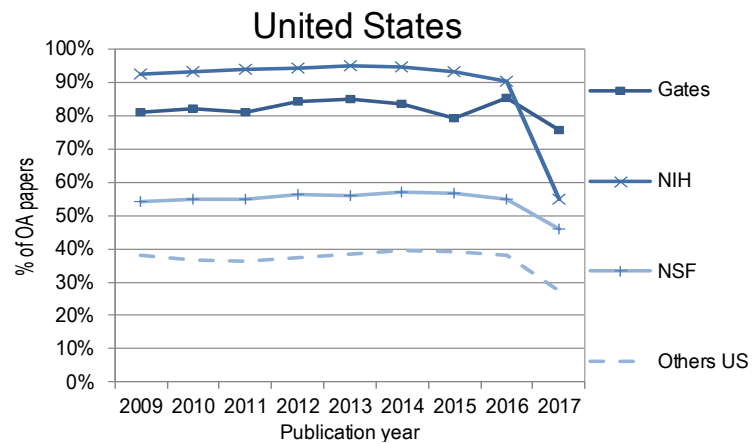


% COMPLIANCE

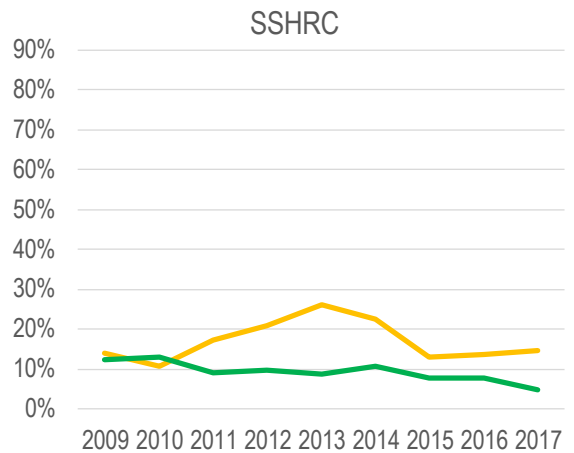
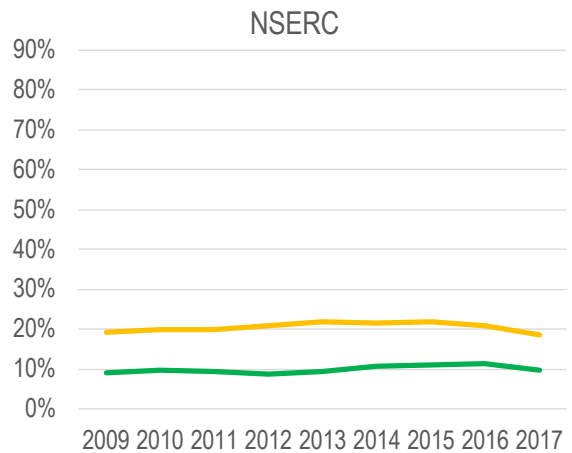
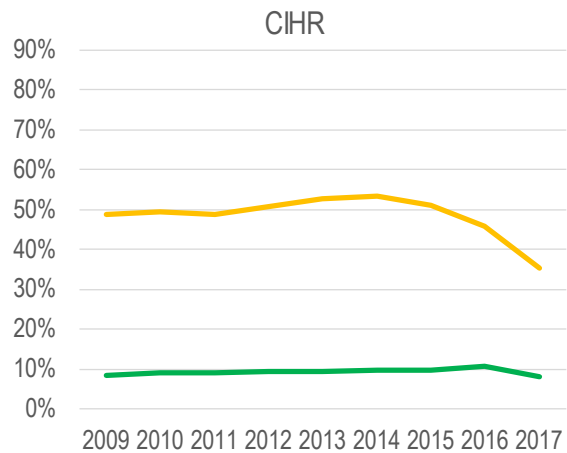
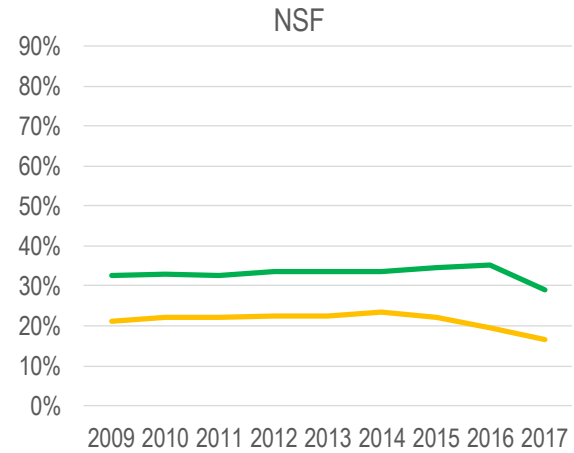
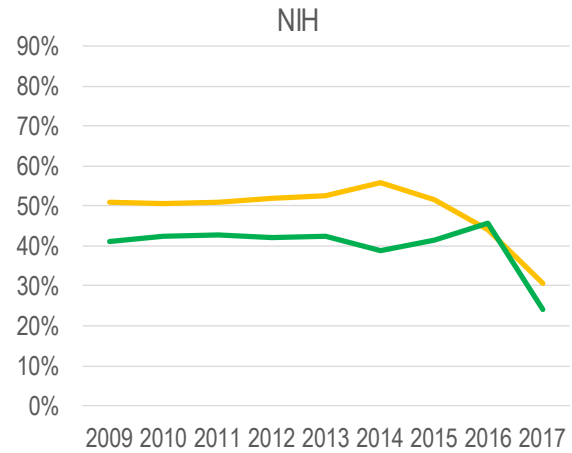
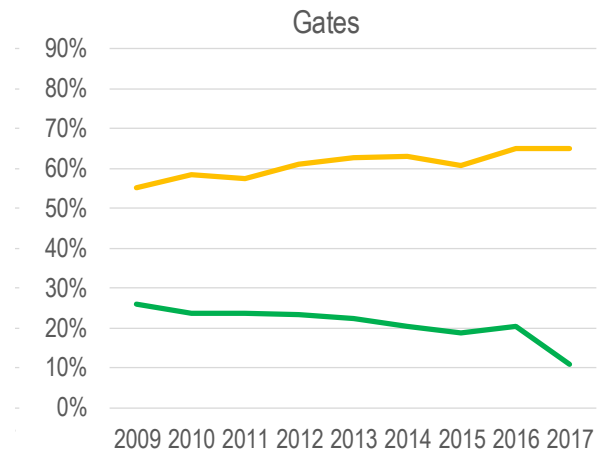
Number of identified papers

Funder	2009	2010	2011	2012	2013	2014	2015	2016	2017	2009-2017
NSF	29,420	35,850	39,647	41,753	43,630	39,566	45,351	44,527	42,417	42,417
NIH	35,624	41,212	44,881	44,844	44,355	37,585	40,932	38,559	38,013	38,013
NSERC	9,037	10,527	11,693	12,250	12,422	11,203	13,229	12,927	12,868	12,868
EPSRC	4,577	5,512	5,966	6,304	6,623	5,824	7,163	7,682	8,231	8,231
CIHR	4,552	5,256	5,743	5,995	6,043	4,923	6,185	5,870	5,514	5,514
ERC	160	392	775	1,465	2,353	2,978	4,495	5,047	5,000	5,000
MRC	2,429	3,132	3,372	3,646	3,898	3,300	4,054	4,183	3,988	3,988
Wellcome trust	2,393	2,918	3,069	3,257	3,531	2,980	3,650	3,766	3,591	3,591
Gates	453	785	987	1,116	1,354	1,223	1,846	1,927	1,952	1,952
ESRC	336	452	566	631	713	634	1,544	1,764	1,683	1,683
SSHRC	194	269	284	355	337	349	1,318	1,375	1,415	1,415

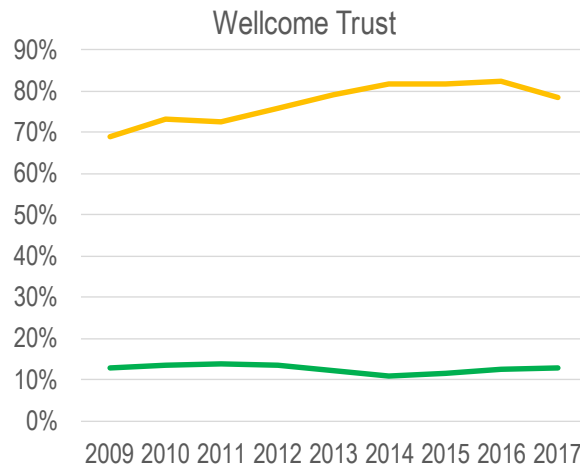
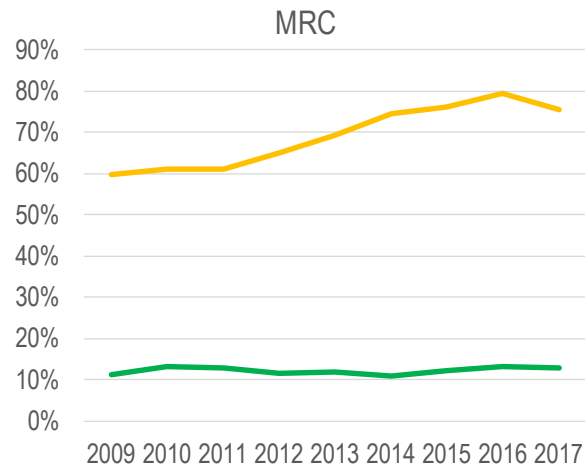
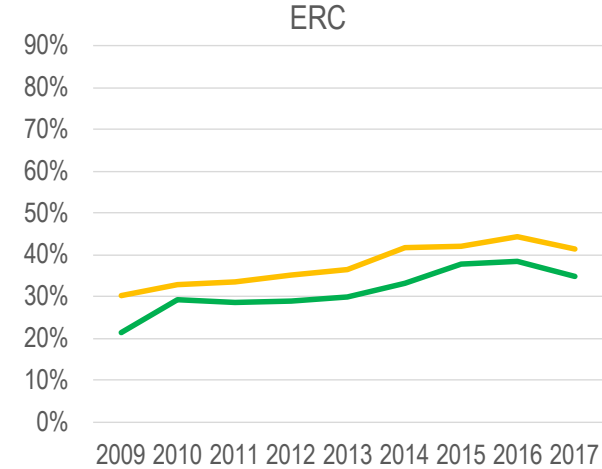
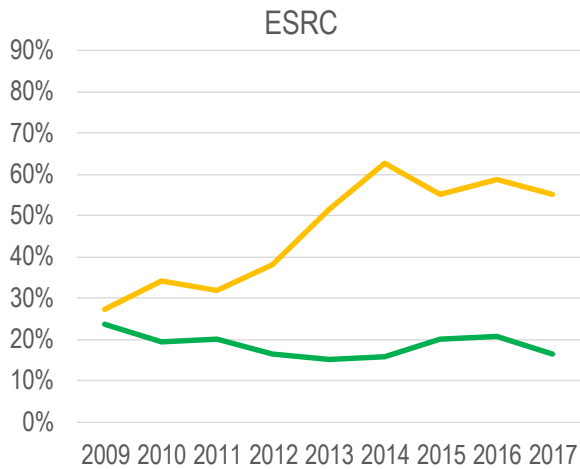
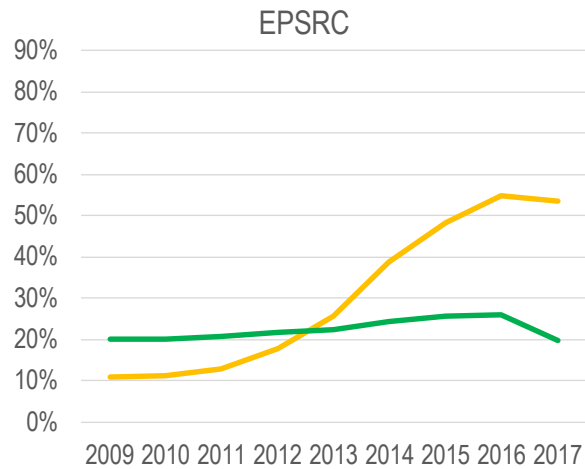
Share of OA by funder



Gold v. Green: N. America



Gold v. Green: UK/Europe



Effect of
Finch Report?

Cultures of compliance

Funder	Biomedical Research	Mathematics	Clinical Medicine	Health	Biology	Earth and Space	Physics	Professional Fields	Psychology	Social Sciences	Engineering	Chemistry
Wellcome trust	94%	96%	87%	89%	89%	71%	73%	92%	82%	74%	80%	75%
NIH	94%	89%	88%	80%	83%	73%	85%	79%	79%	63%	73%	82%
MRC	91%	88%	78%	81%	84%	66%	46%	75%	64%	74%	50%	60%
ERC	89%	82%	75%	67%	75%	88%	77%	52%	63%	55%	53%	48%
ESRC	92%	70%	77%	72%	60%	68%	66%	59%	60%	64%	56%	60%
EPSRC	77%	79%	65%	71%	69%	59%	60%	58%	54%	62%	49%	39%
Gates	91%	95%	83%	83%	58%	51%	50%	29%	46%	43%	46%	52%
NSF	85%	74%	77%	61%	54%	62%	50%	43%	37%	28%	25%	27%
CIHR	74%	73%	53%	52%	56%	43%	36%	46%	22%	25%	21%	24%
NSERC	59%	55%	39%	42%	28%	32%	40%	15%	18%	8%	12%	10%
SSHRC	79%	40%	36%	25%	36%	32%	27%	14%	17%	17%	17%	0%

Recommendations

- 1 Infrastructure
- 2 Embargos
- 3 Culture
- 4 APCs

Questions?

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