



CMV Awareness: What are we really measuring?



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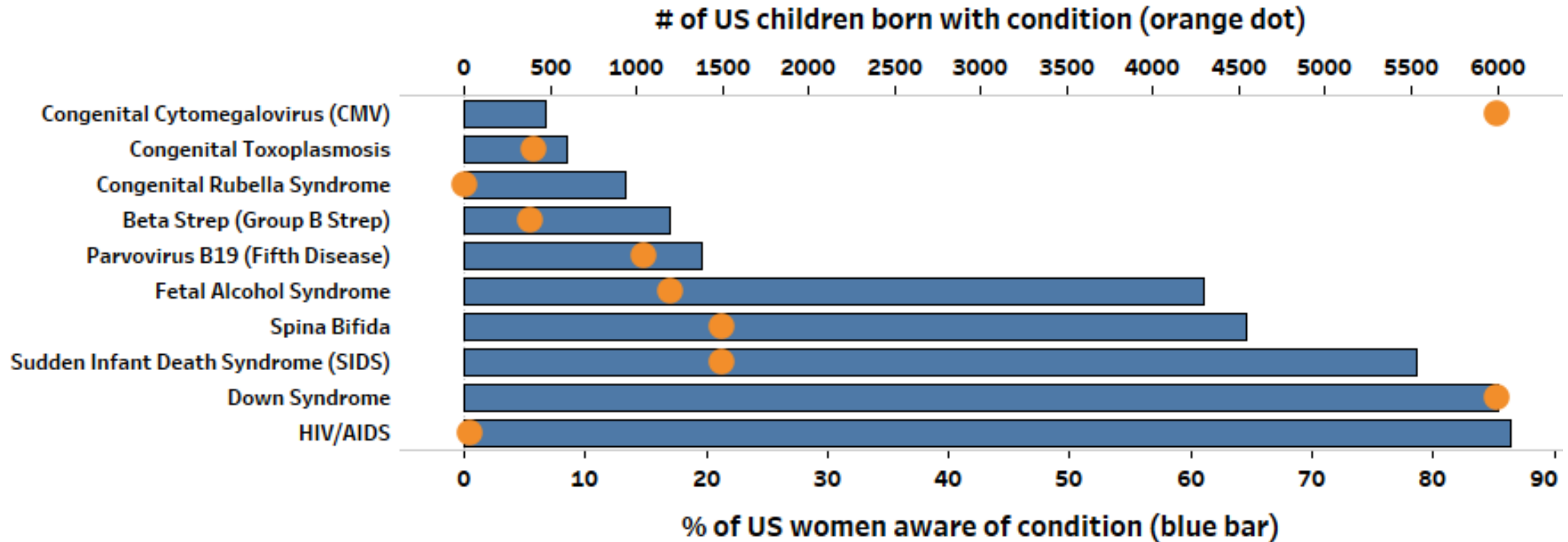
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Congenital CMV Awareness Gap

Occurrence of Congenital Conditions vs Women's Awareness of Those Conditionsⁱ



Cannon (2009); Jeon et al (2006); Ross (2008); ⁱDoutré et al (2016)

This awareness gap has serious public health implications because cCMV is more **common** than other congenital conditions (Canon et al. 2010; Boppana et al. 2013), **preventable** through behavioral modifications (Adler & Nigro, 2013), and likely **treatable** in utero (Adler, 2011)

Learning Objectives

- Discuss CMV awareness studies in the US and abroad
- Define CMV awareness vs. demonstrated understanding of CMV
- Identify how demonstrated understanding of CMV will improve public health outcomes

CMV Awareness usually measures SELF-REPORTED FAMILIARITY

9% of US women in the general population

“Have you heard of the following?” Ross et al 2008, Doutré et al 2016

60% of pregnant women receiving care in France* (74% Hospital A, 34% Hospital B)

“Identify which of the following diseases you have heard of?” Cordier al 2012

23-31% of US women with college education

“Identify which of the following diseases you have heard of?” Jeon et al 2006

“Have you heard of the following?” Doutré et al 2016

56% of US women with experience in health care

“Identify which of the following diseases you have heard of?” Jeon et al 2006

12% of midwives in the Netherlands

“Which ... diseases have you heard, read, or seen information about?” Pereboom et al 2013

19% of childcare providers in western US

‘Are you aware of CMV?’ Thackeray et al 2016

Neither pregnancy* or work in day care setting has statistical effect on CMV awareness
CMV awareness is lower than less prevalent childhood illnesses, even among health care professionals

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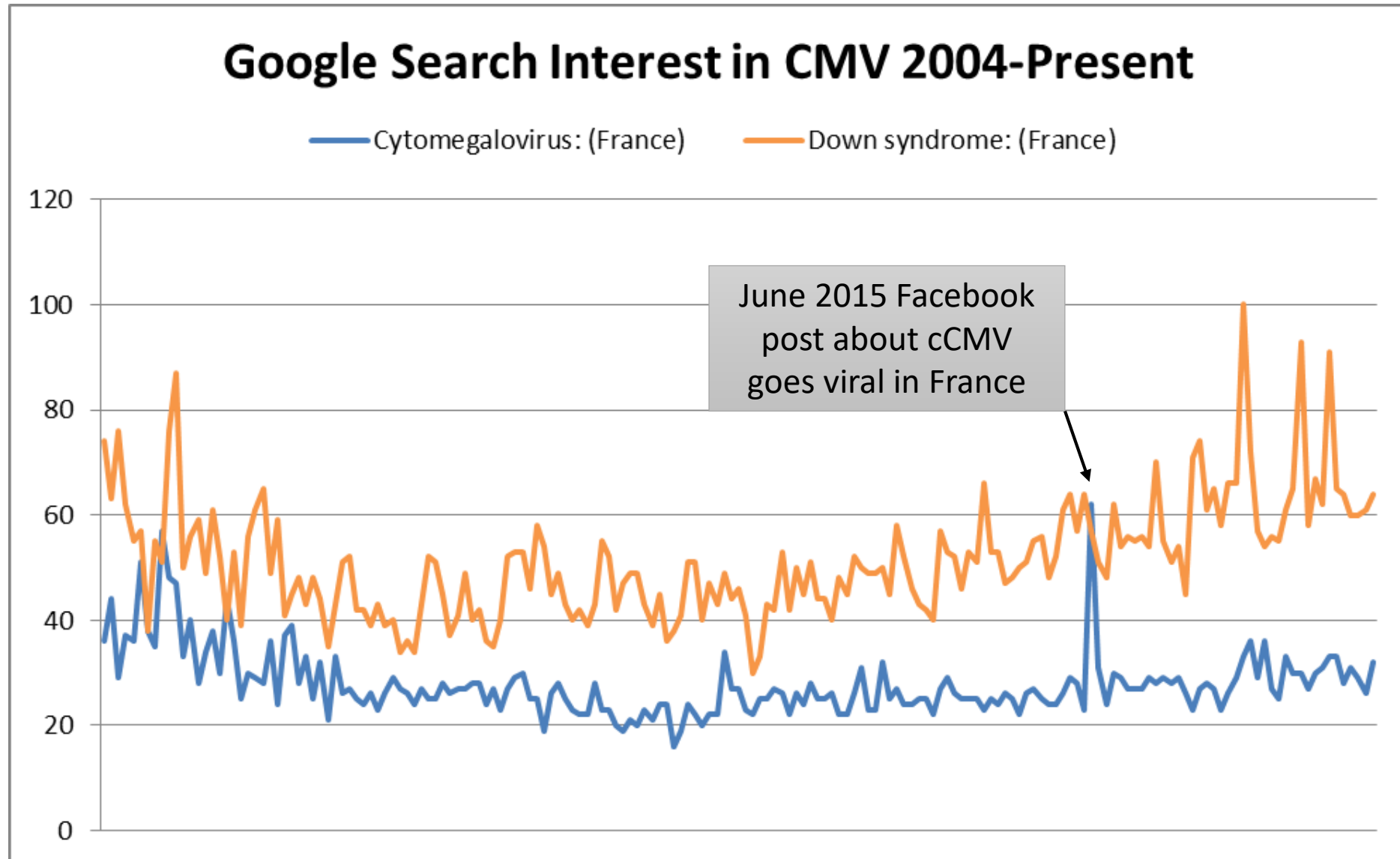
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CMV Awareness does not lead to contagious interest



Why we need a new metric for assessing CMV knowledge

Social desirability bias (Orne 1962)

- Participants often exaggerate responses in self-report studies in a manner that would be viewed favorably by others



Awareness is a subjective form of knowledge

- Participants may have heard of or recognize a topic from a list, yet be unable to describe anything meaningful about it

It is not enough that women of childbearing age are aware of cCMV; They must also demonstrate understanding of the health risks of cCMV in order for public health interventions to be successful



HEALTH RISK KNOWLEDGE of cCMV

- participants demonstrate understanding of cCMV by correctly answering the question, “By which of the following behaviors can people contract or spread cytomegalovirus (CMV) infection?” (Muldoon et al 2017)

Behavioral Modes of CMV Transmission

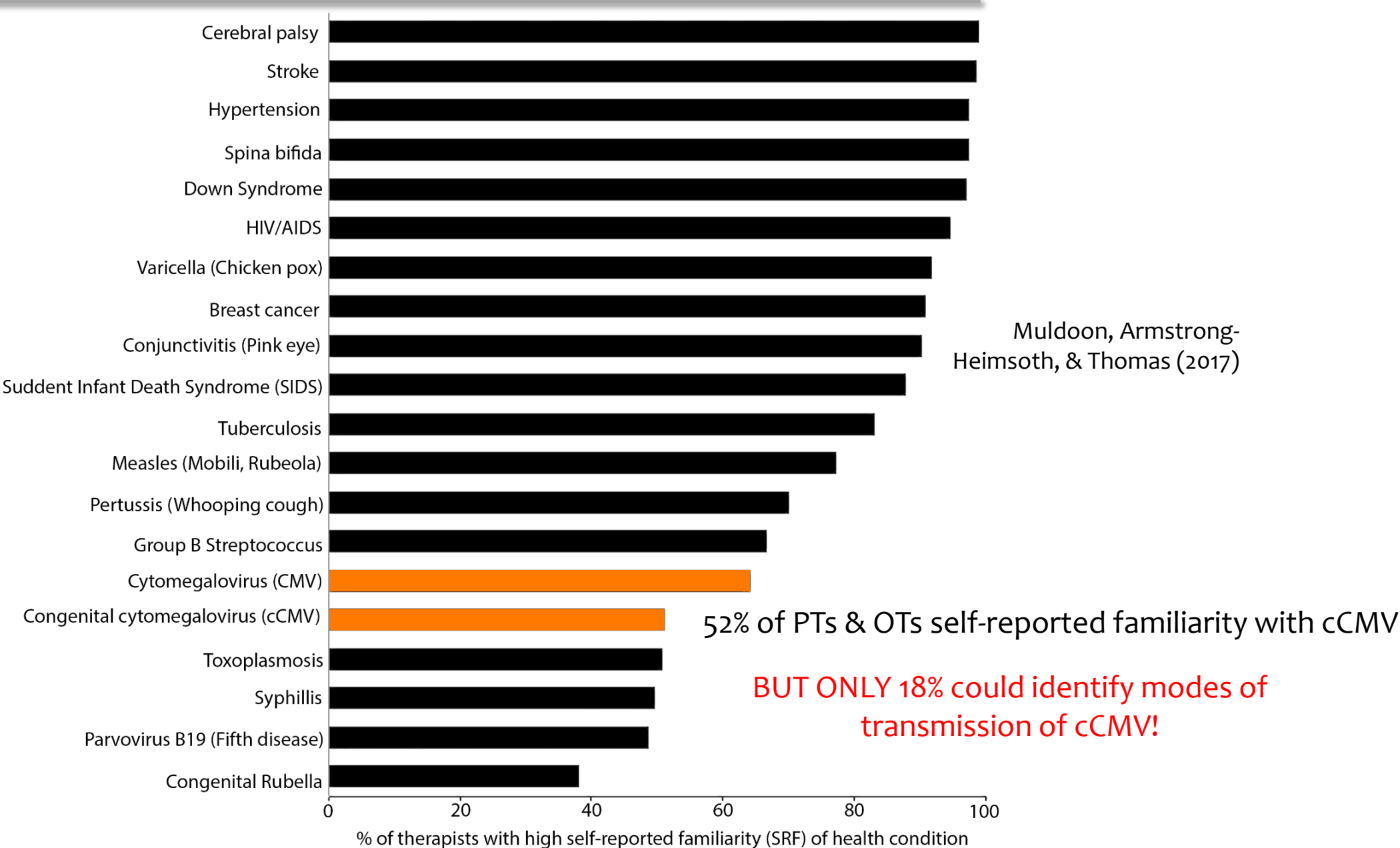
- Kissing
- Contact with wet diapers
- Sharing eating utensils
- Sharing food and/or drink
- Handling children’s toys



Correct identification of ALL behavioral modes of CMV transmission

HRK

Self-reported Familiarity (SRF) vs. HRK of cCMV



Estimating HRK in previous studies

From Muldoon et al. 2017

- Survey of 201 female OTs and PTs
- HRK = 0.21, SRF = 0.52
- Difference = -65%

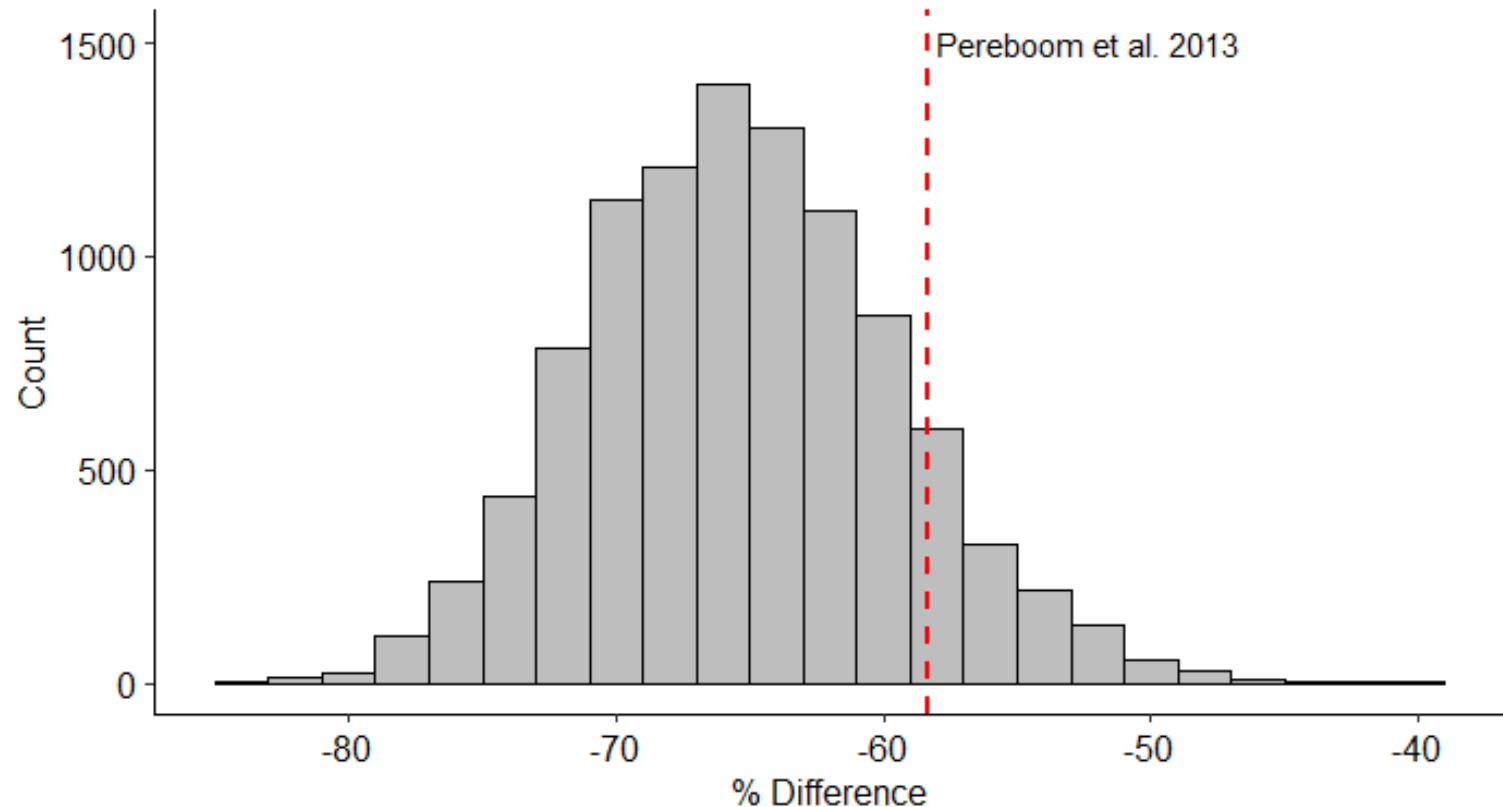
Computer Simulation

- Binomial Distribution (coin-flip)
 - rbinom function in R
 - $N = 10,000$
 - Simulate HRK and SRF
 - Then calculate % difference

























Best case: -41%
Worst case: -84%

Simulated % Difference between HRK and SRF

Based on Muldoon et al. 2017



Estimating HRK in previous studies

Study	Population	SRF	Estimated HRK		
			Best Case	Most Likely	Worst Case
Doutre et al. 2016	US Total	0.09	 0.05	 0.03	 0.01
	US w/ College	0.23	 0.14	 0.08	 0.04
Cordier et al. 2012	FRA Hospital A	0.74	 0.44	 0.26	 0.12
	FRA Hospital B	0.34	 0.20	 0.12	 0.05
Jeon et al. 2006	US Healthcare	0.56	 0.33	 0.20	 0.09
	US w/ College	0.31	 0.18	 0.11	 0.05
Perebroom et al. 2013	NED Midwives	0.12	 0.07	 0.04	 0.02
Thackery et al. 2016	US Childcare	0.19	 0.11	 0.07	 0.03

At best 5% of the general US population and 33% of US healthcare workers have health-risk knowledge of cCMV

Take-Home Points

- Health risk knowledge is a higher-level, objective form of knowledge of cCMV
- Health risk knowledge is the appropriate metric for assessing success of public health interventions

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Thank you

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