Impact of Vaccine Hesitancy and Strategies to Increase Immunization

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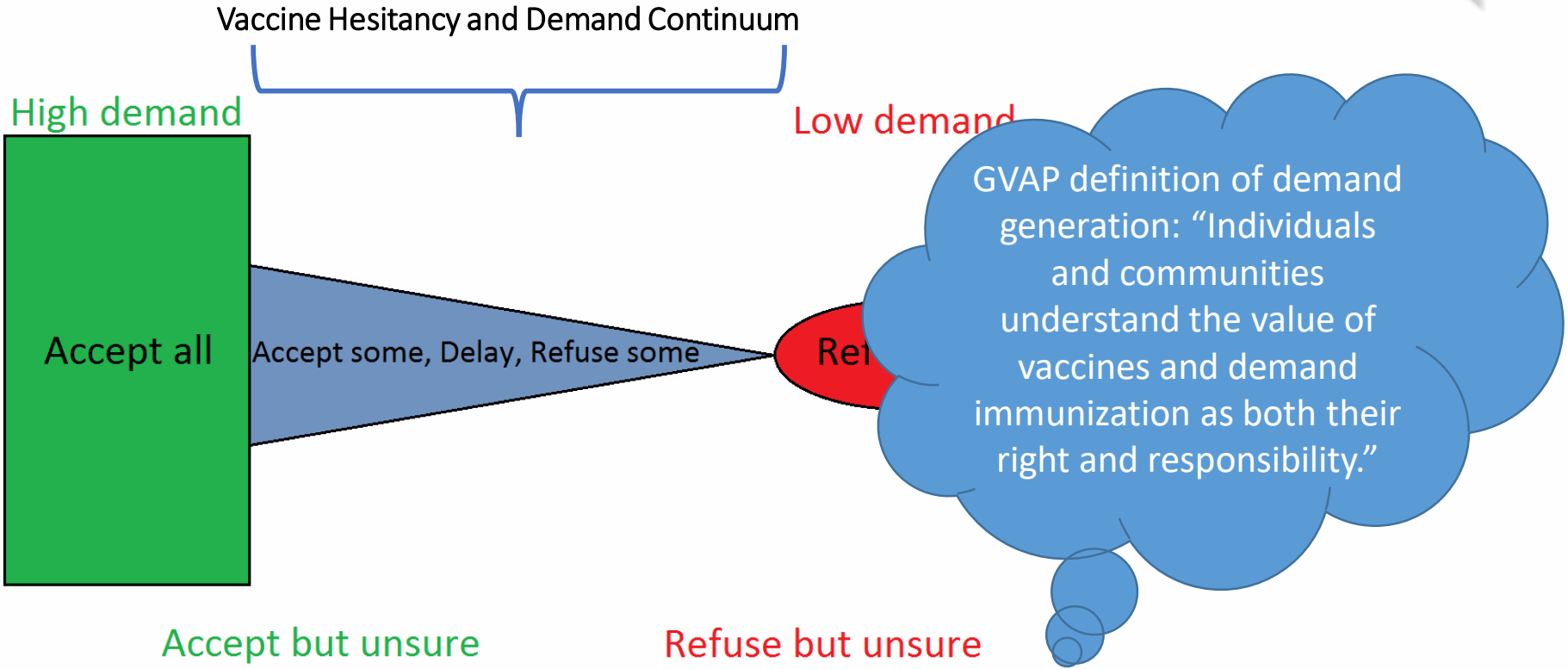
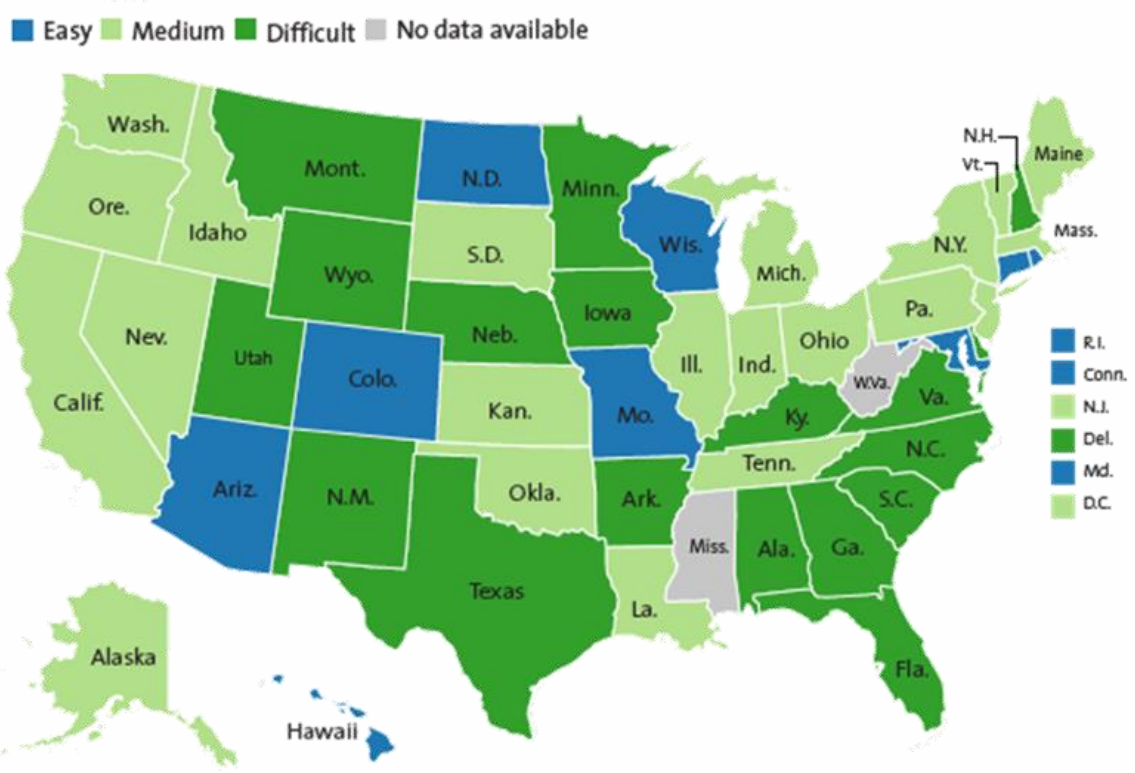


Report of the SAGE Working Group on Vaccine Hesitancy, 2014

Impact of Vaccine Hesitancy

Ease of Obtaining Vaccine Exemptions –by State



Omer et al., New England Journal of Medicine. 2012

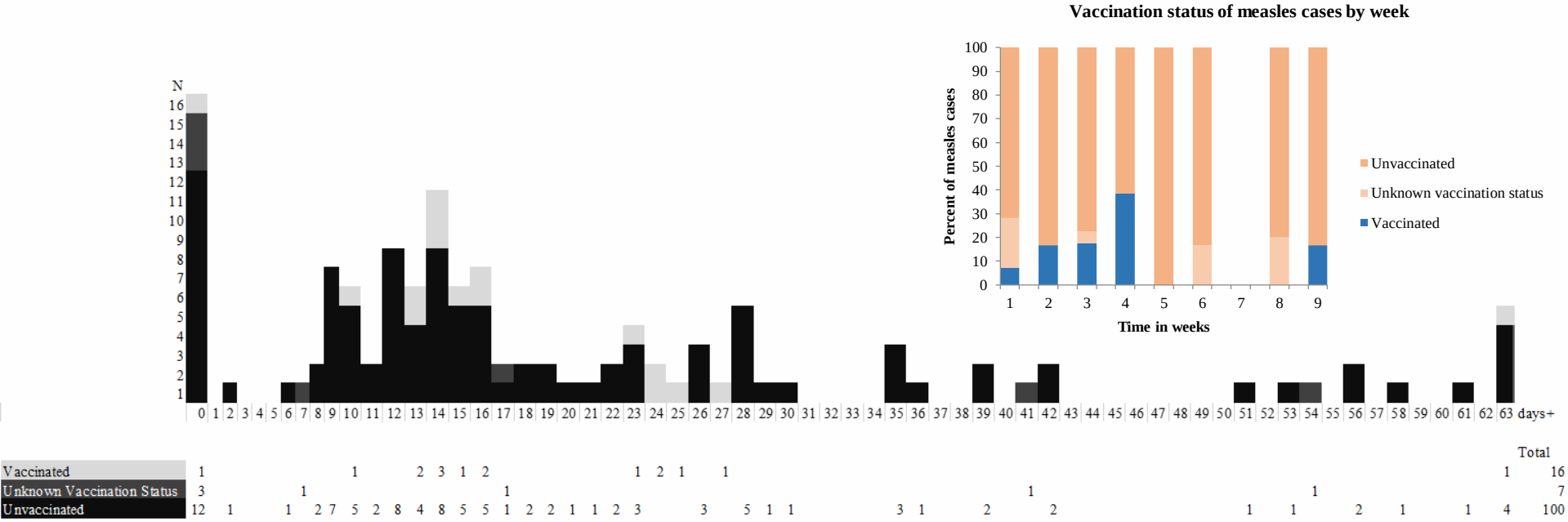
Figure (with updated 2013 data) created by Mother Jones

Exemption Policies & Whooping Cough Incidence, 1986-2004

Exemption ease	Incidence Rate Ratio
Difficult	Reference
Medium	1.35 (0.96-1.91)
Easy	1.53 (1.10-2.14)

Omer et al., JAMA, 2006

Cumulative Epidemic Curve of 16 Measles Outbreaks 2000 - 2015, United States



Phadke et al. JAMA, 5 2016

Correct misinformation regarding vaccine safety?

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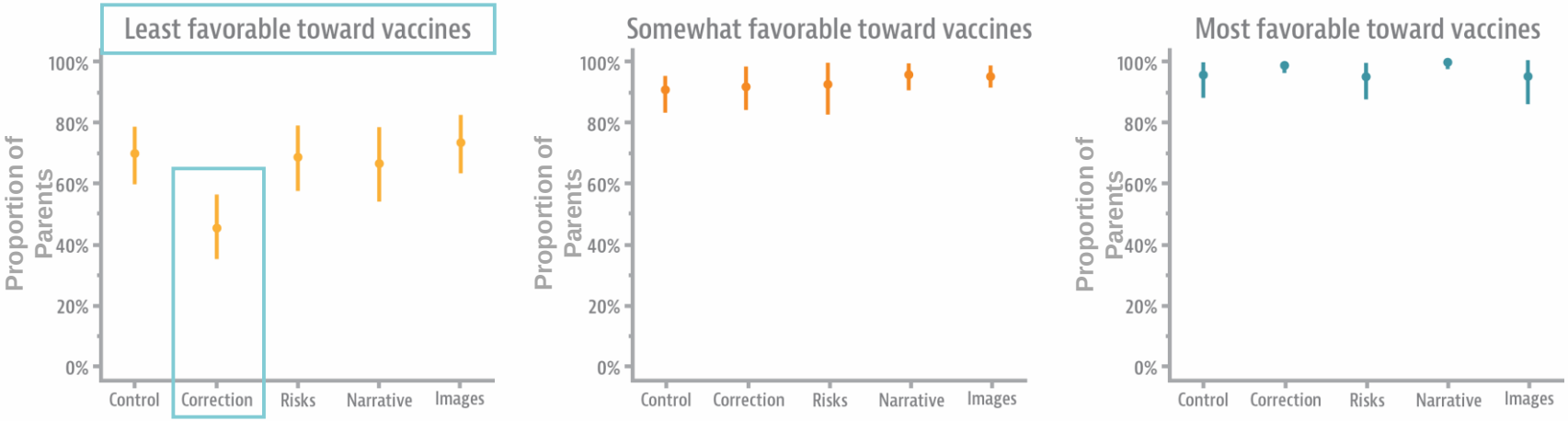
Correcting MMR Vaccine Myths



Main points: 1) Outcome persisted even when knowledge scores increased

2) Misperceptions may not be overcome with knowledge alone

4. Nyhan & Reifler, 2015

Evidence-based Strategies

1. Behavioral economics
2. Clinical psychology
3. Heuristics

Affect vs. Cognition

BMW AG

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Displacement:
1,499 cc

Block / head material:
aluminum / aluminum

Horsepower (SAE net):
134 @ 4,500-6,000 rpm

Torque:
162 lb.-ft. (220 Nm)
@ 1,250 rpm

Specific output:
89 hp/L

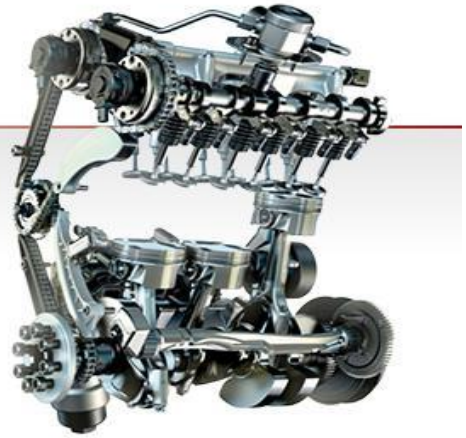
Bore x stroke:
82 x 94.6 mm

Compression ratio:
11.0:1

EPA city / highway:
29 / 40 mpg

Assembly site:
Hams Hall,
Warwickshire, U.K.

Application tested:
'15 Mini Cooper Hardtop

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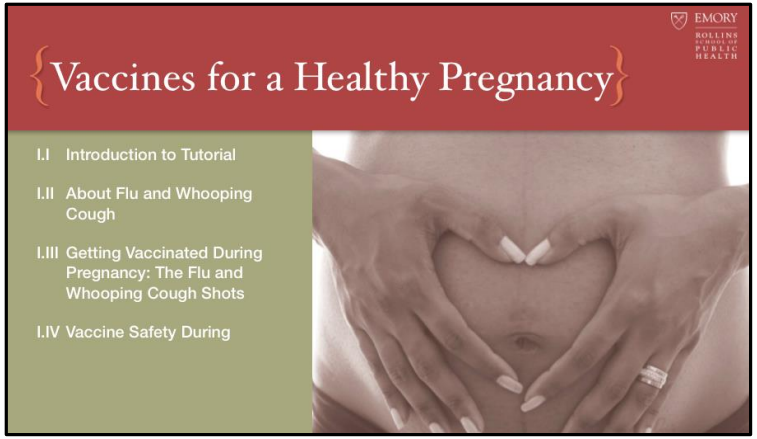
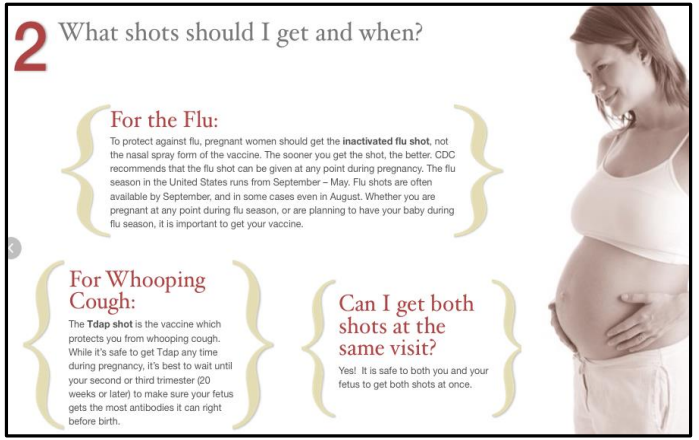
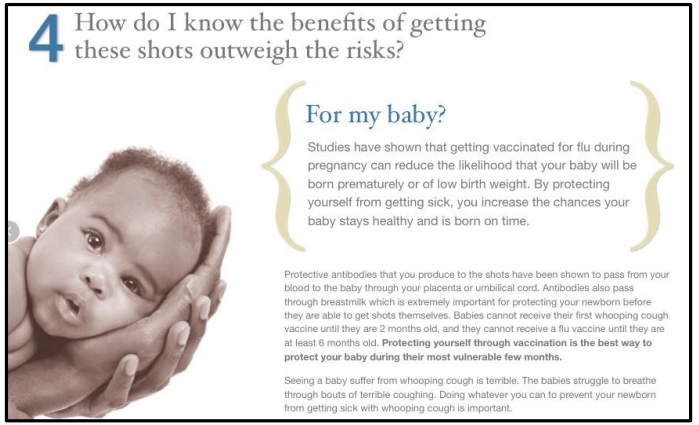
* Acceleration claim based on BMW AG test results. Figures based on 23 mpg city/33 mpg hwy for 328i Automatic Transmission. May change as a result of EPA testing. †Whichever comes first. For full details on BMW Ultimate Service® visit bmwusa.com/ultimateservice.

Intervention 1: Cognitively-Based iPad App

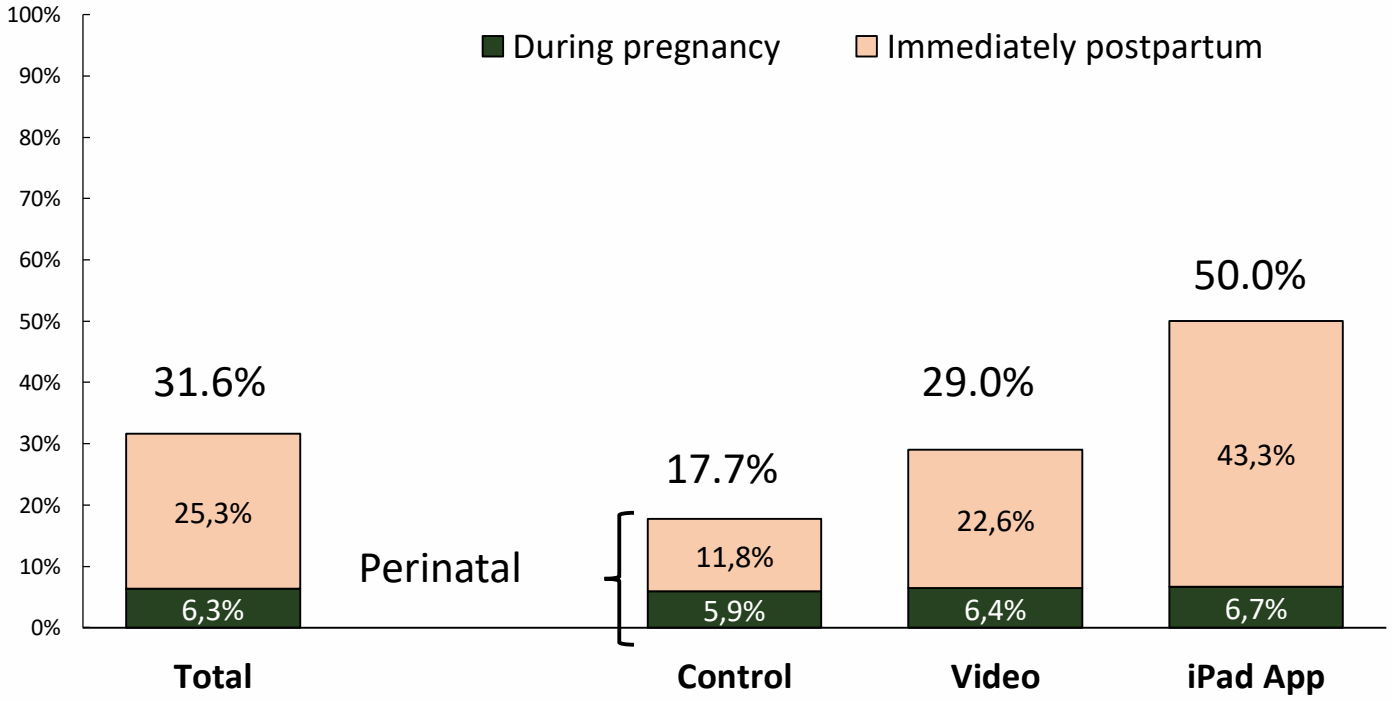




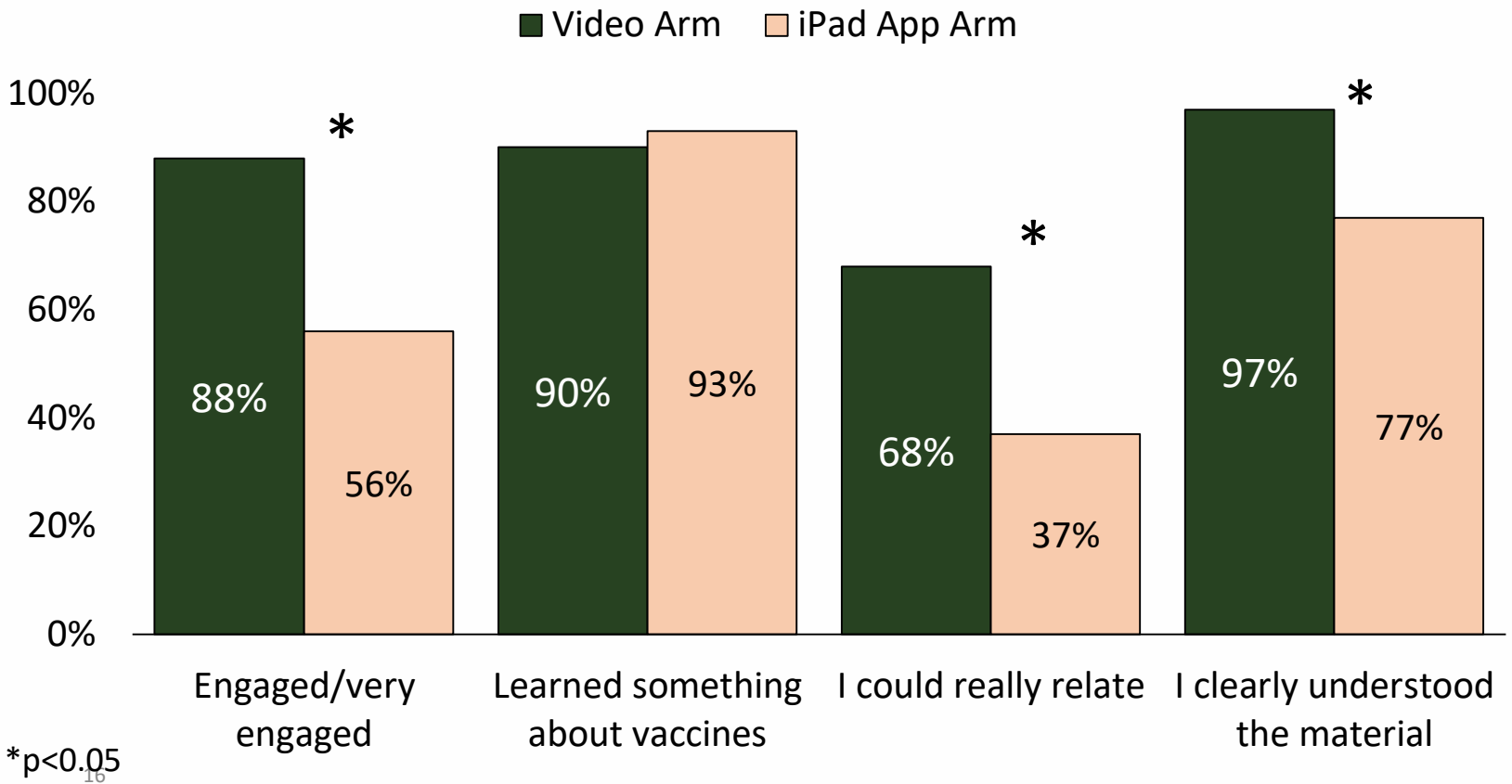


Intervention 2: Affectively-Based Video

Tdap Vaccination During Pregnancy and Postpartum



Engagement with the Interventions



*p<0.05

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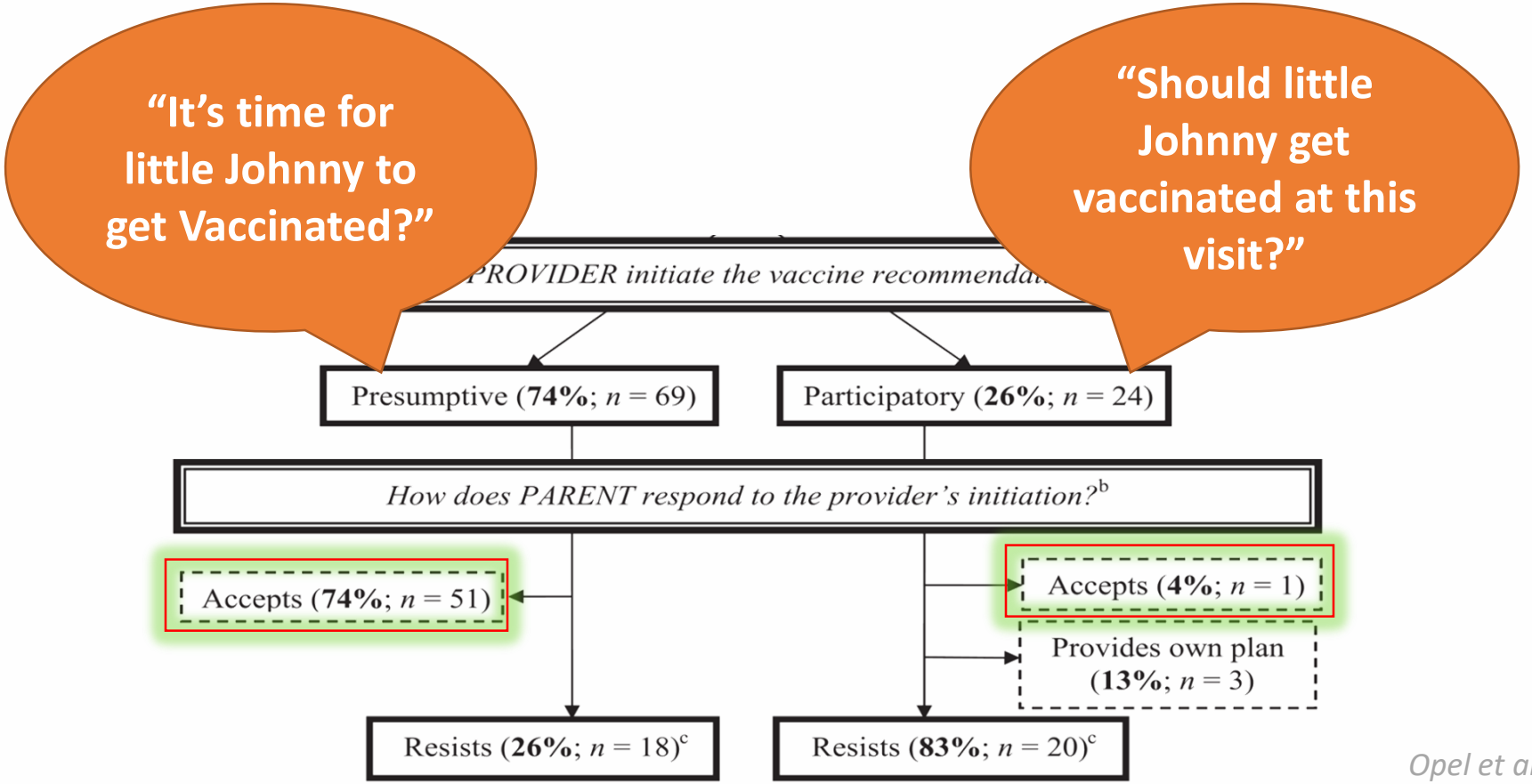
How can we leverage power of defaults?

The Architecture of Provider-Parent Vaccine Discussions



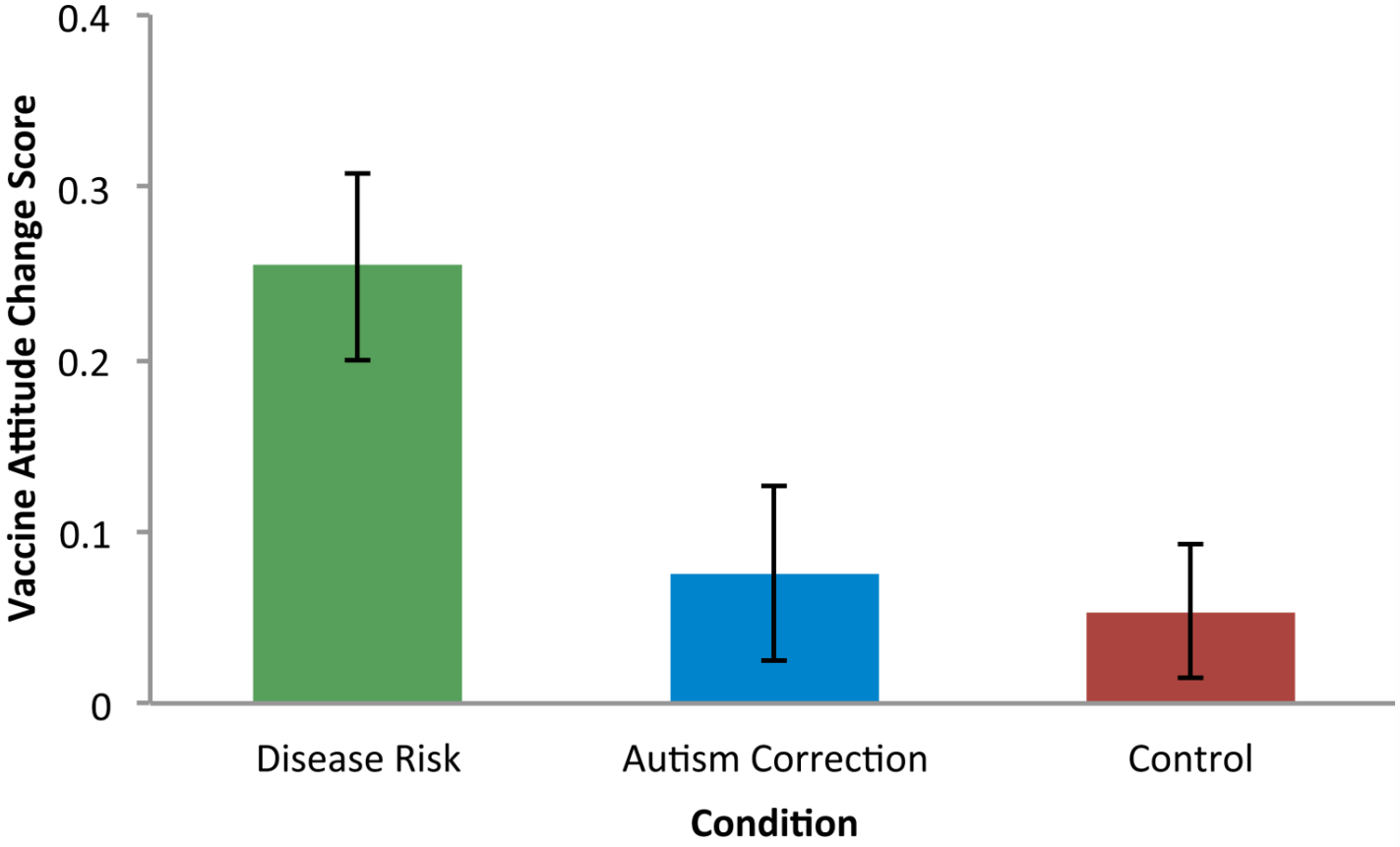
Opel et al. 2013

18

Talk about the disease

Disease Risk Salience

- Can backfire
- Do not shock
  - Could induce behavioral paralysis + dismissal of subsequent information
- Always include a solution
  - ↑Self Efficacy
  - ↑Response Efficacy
- Use sparingly & Ethically



Horne et al., PNAS, 2015

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Framing

Ending with Self-Efficacy

After you inform parents of disease risks, do not leave them hanging

Provide parents with actions they can take to protect themselves (self-efficacy[8,9])

Now you should address the vaccination again

The single best way to protect yourself AND your baby

8. Witte, 1992 9. Barnett, et al., 2009

Key Point: Follow severity with self-efficacy

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We are excellent linguists but poor statisticians

COGNITIVE PSYCHOLOGY 5, 207–232

"people judge the probability of events by the ease in which instances could be brought to mind"

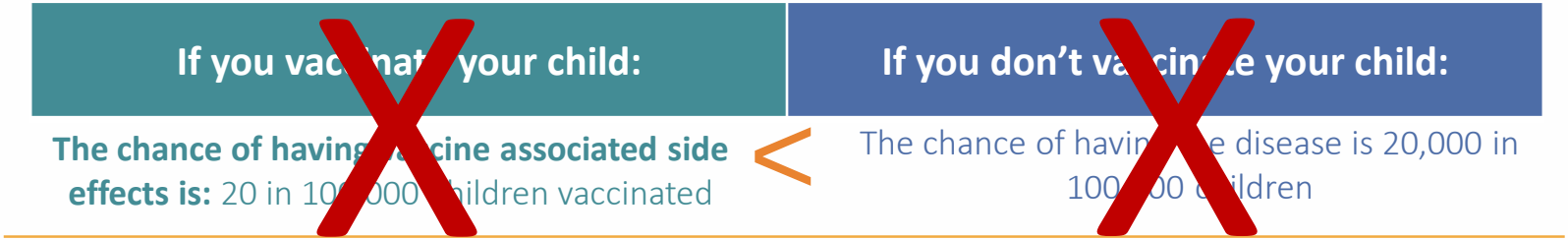
psychologyandsociety.com

Availability: A Heu
Frequency and Pro

AMOS TVERSKY AND DANIEL KAHNEMAN
The Hebrew University of Jerusalem and the Oregon Research Institute

Content

What Matters to Parents?

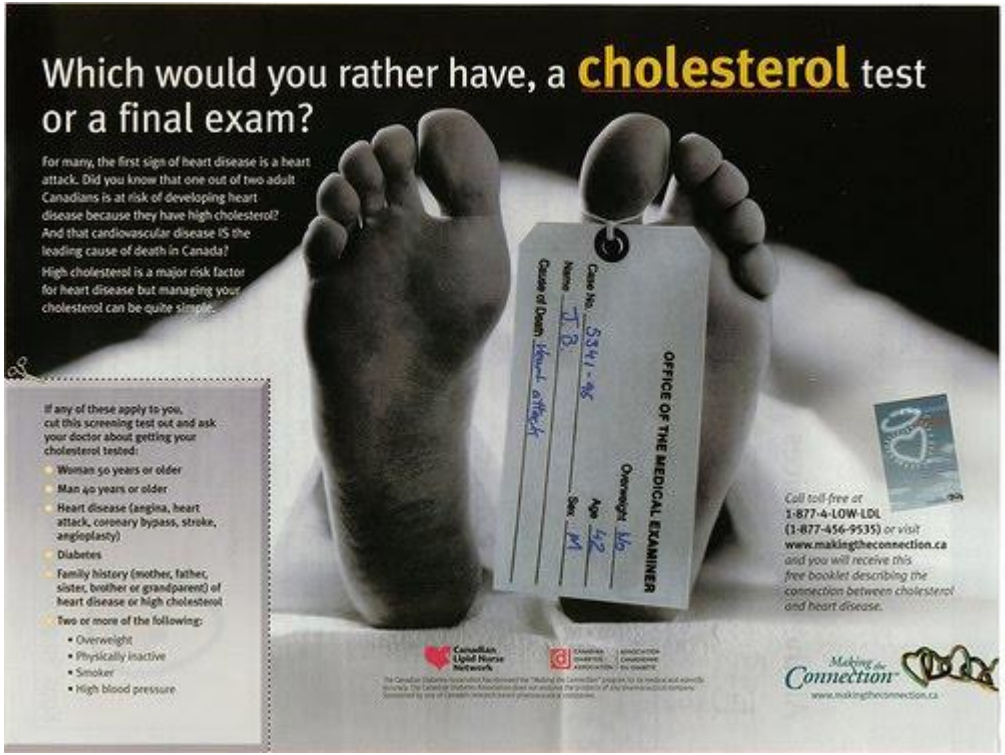


1. The risk of an unvaccinated child contracting a disease is much higher than having a vaccine-associated adverse event
2. The presentation of these probabilities did not matter
3. The perceived severity of the disease or adverse event mattered more
4. Parents anticipate more regret from a decision not to vaccinate than to vaccinate.[10]

Main point: Perceived disease severity resonates more than statistical probabilities

10. Sadique et. al, 2013


KÁREL BYCH
*1977 †2009
CZECH RED CROSS
HELP BEFORE IT'S TOO LATE
ATTEND FIRST AID TRAINING


Which would you rather have, a cholesterol test or a final exam?
For many, the first sign of heart disease is a heart attack. Did you know that one out of two adult Canadians is at risk of developing heart disease because they have high cholesterol? And that cardiovascular disease IS the leading cause of death in Canada?
High cholesterol is a major risk factor for heart disease but managing your cholesterol can be quite simple.
If any of these apply to you, cut this screening test out and ask your doctor about getting your cholesterol tested:
Woman 50 years or older
Man 40 years or older
Heart disease (angina, heart attack, coronary bypass, stroke, angioplasty)
Diabetes
Family history (mother, father, sister, brother or grandparent) of heart disease or high cholesterol
Two or more of the following:
• Overweight
• Physically inactive
• Smoker
• High blood pressure
OFFICE OF THE MEDICAL EXAMINER
Case No. 5341-96
Name J.D.
Cause of Death Heart attack
Overweight No
Age 42
Sex M
Call toll-free at 1-877-4-LOW-LDL (1-877-456-9535) or visit www.makingtheconnection.ca and you will receive this free booklet describing the connection between cholesterol and heart disease.
Canadian Lipid Nurse Network
Making the Connection
www.makingtheconnection.ca

What to do when you cannot get out of correcting a myth?

Framing

Addressing a Myth

Sometimes addressing a myth is unavoidable – what should you do?

Clearly state that her assertion is a myth

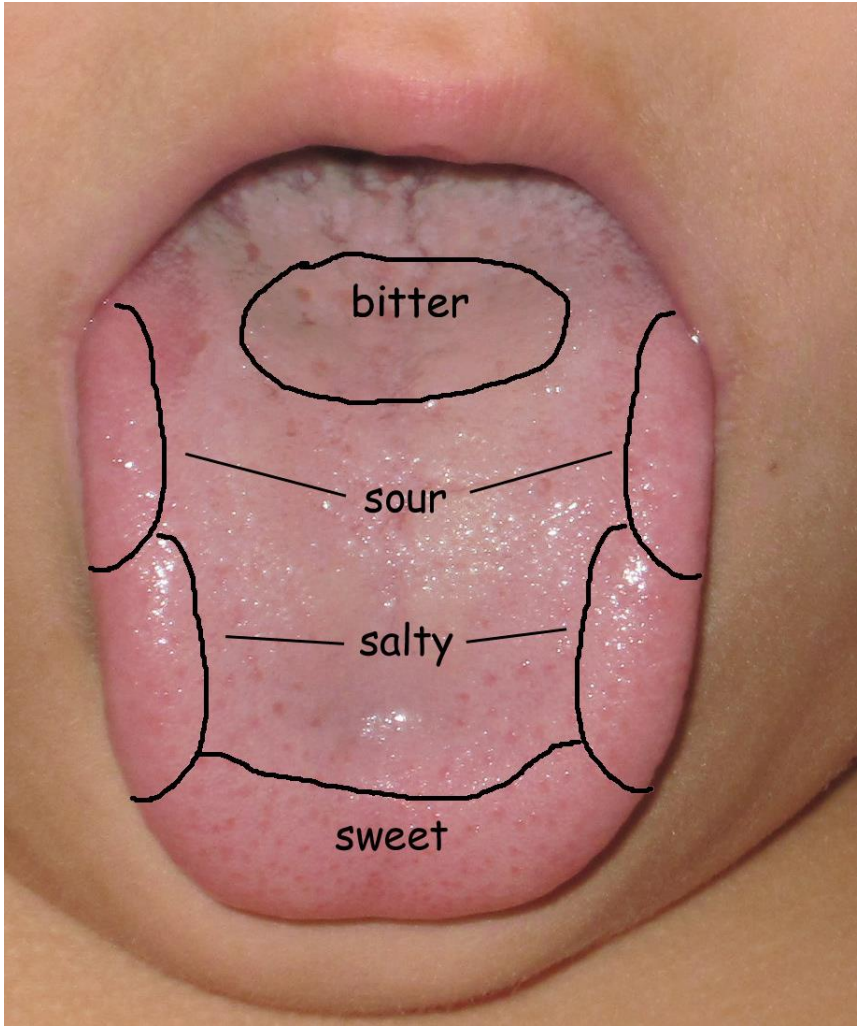
State why the myth is not true

Replace the myth with the best alternative explanation

Think of it like a blank space where her belief in the myth used to reside

5. Cook, J. & Lewandowsky, S., 2011.

Value the underlying values


bitter
sour
salty
sweet


Harm/Care

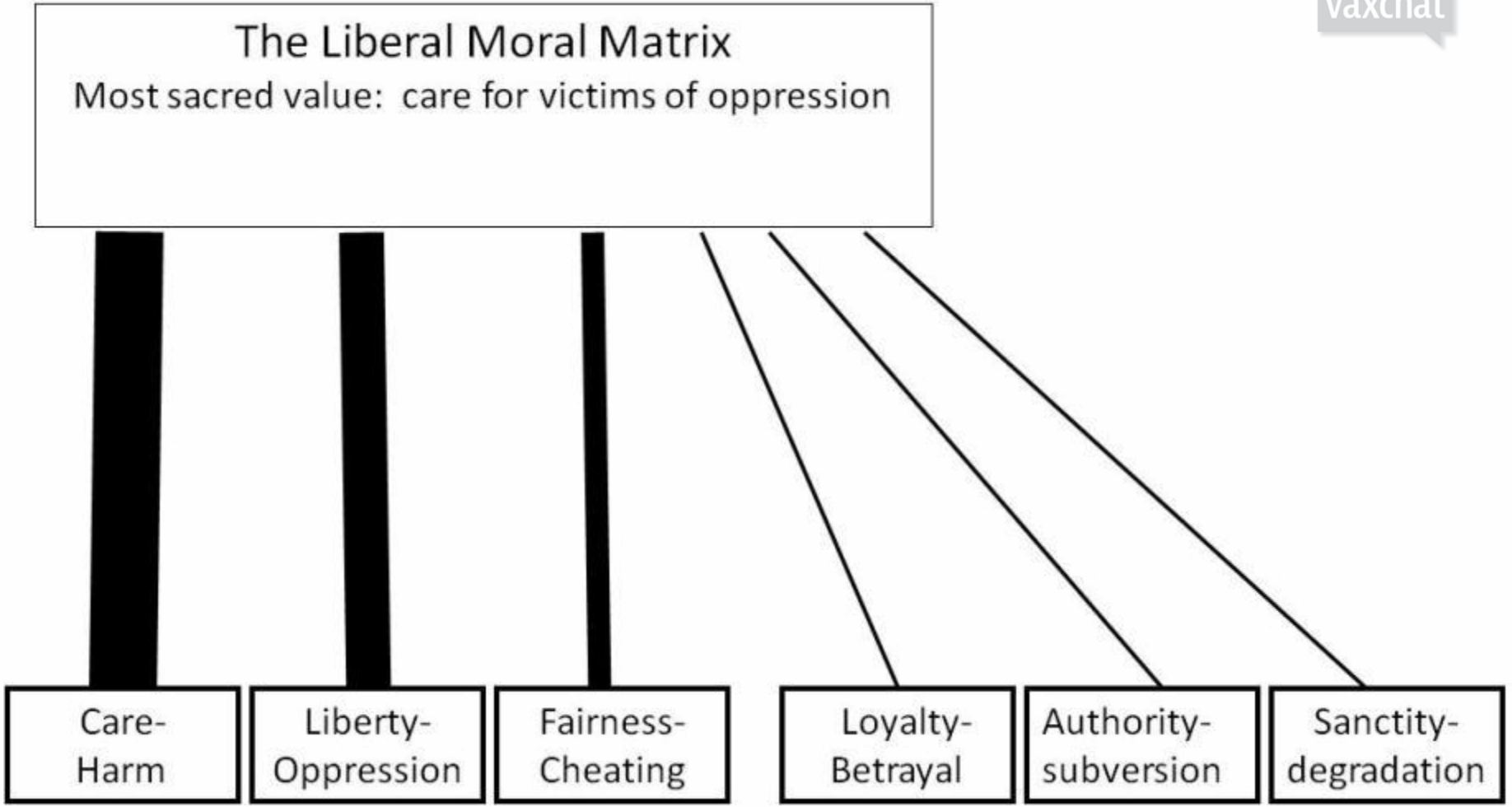

Fairness/
Cheating

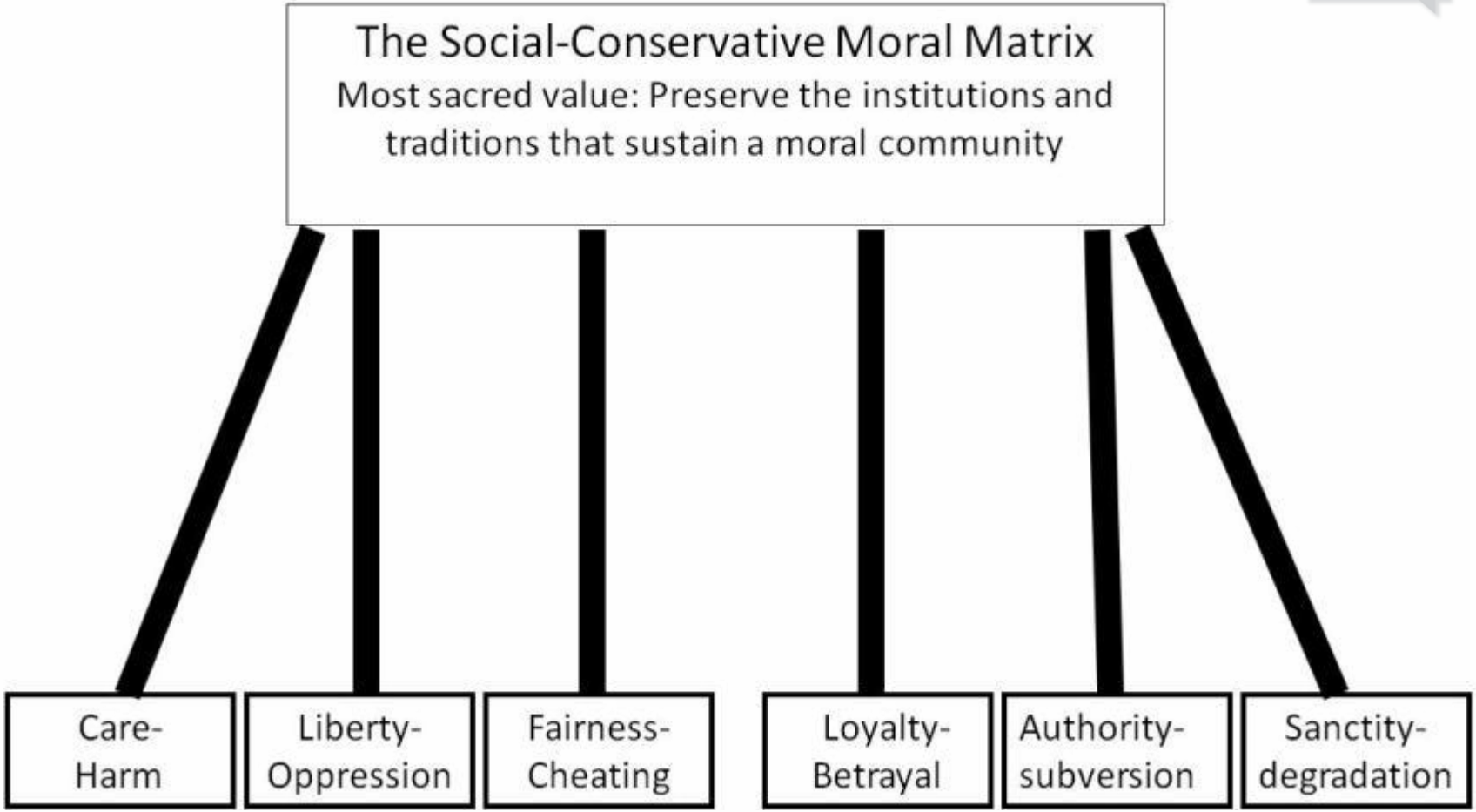

Loyalty/
Betrayal


Authority/
Subversion


Purity/
Degradation


Liberty/
Oppression


The Liberal Moral Matrix
Most sacred value: care for victims of oppression
Care-Harm
Liberty-Oppression
Fairness-Cheating
Loyalty-Betrayal
Authority-subversion
Sanctity-degradation


The Social-Conservative Moral Matrix
Most sacred value: Preserve the institutions and traditions that sustain a moral community
Care-Harm
Liberty-Oppression
Fairness-Cheating
Loyalty-Betrayal
Authority-subversion
Sanctity-degradation

Disease eradication: walk the last mile first

The NEW ENGLAND JOURNAL of MEDICINE

Go Big and Go Fast — Vaccine Refusal and Disease Eradication

Saad B. Omer, M.B., B.S., Ph.D., M.P.H., Walter A. Orenstein, M.D., and Jeffrey P. Koplan, M.D., M.P.H.

Disease eradication is an attractive public health goal. In addition to eliminating illnesses and deaths, eradication can lead to substantial cost savings. Eradication has been attempted for many human and animal diseases, such as smallpox, malaria, hookworm disease, polio, rinderpest, yaws, dracunculiasis (guinea worm disease), and yellow fever, and many tools have been employed in these efforts. But in the two diseases that were successfully eradicated, smallpox and rinderpest, the main tool was a vaccine. Eradication strategies for polio (a major current focus of global eradication efforts) and measles (whose eradication is being considered) rely on high vaccination coverage through routine and supplementary immunization.

Many factors contribute to the development of clusters of people who refuse vaccines, including changes over time in attitudes toward vaccines. If aggressive control efforts have substantially reduced a disease's incidence, few people in a given community may have direct (or indirect) experience with that disease. Therefore, successive age cohorts have only a vague collective memory of the disease's dangers, whereas people may frequently hear about real and perceived adverse effects of vaccination. Parental perception of risks and benefits associated with vaccines is thus altered, and vaccine refusals often increase.[1] North American and European countries, for example, have seen substantial reductions in the rates of vaccine-preventable diseases. Since vaccines

Empirical studies have validated this model as a predictor of vaccine refusal. In the context of eradication, reduction in disease incidence reduces the perceptions of susceptibility to disease and its complications, diminishing an important motivation for accepting a vaccine.

It is often assumed that this phenomenon does not apply to low-income countries where there is increasing opposition to vaccines, despite the high burden of infectious diseases. This perspective misses an important point: perceptions regarding vaccines are often vaccine-specific and disease-specific. For example, in high-income countries, although many parents have generalized concerns regarding immunization, perceptions of specific vaccines vary considerably. Similarly

"Some people have never even seen polio, but yet they keep giving us medicine for it," one Nigerian told a researcher.

"If you look around it is hard to find 2 or 3 people with polio, but it is easy to go to the hospital and find 50 people sick with no money to buy the medicine they need to be treated with. Help them instead, but No! You find a small baby who is well and drop medicine in his mouth, for free!"

Omer et al., New Eng Journal of Medicine, 2013

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In Summary

10 Major Points

1. Presume vaccination
2. Don’t affirm a misperception
3. Avoid lingering on a myth
4. Seek permission to share your knowledge
5. Connect to a parent’s values

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In Summary

10 Major Points

6

Pivot to the disease and focus on severity

7

Follow severity with self-efficacy

8

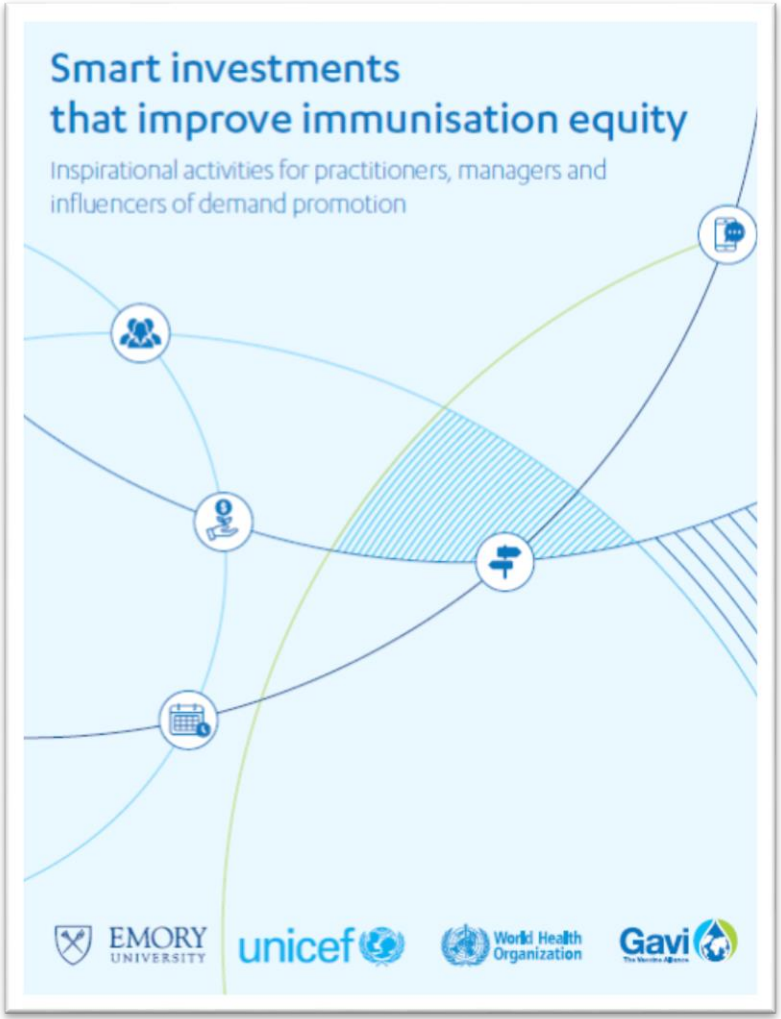
Know 1-2 easy-to-remember facts

9

Continue the conversation

10

Make vaccination the norm



VIEWPOINT

Communicating About Vaccines in a Fact-Resistant World

JAMA Pediatrics

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Rupali J. Limaye, PhD
Bloomberg School of Public Health, Johns Hopkins University, Baltimore, Maryland.

The continued success of vaccines, one of the most effective public health interventions, depends on high rates of acceptance. Vaccine refusal in the United States has increased since the late 1990s.[1] This trend has coincided with an increase in vaccine safety concerns. Such concerns result from easy recall of adverse events, misinformation, and human tendency to poorly judge probabilities. When a significant proportion of the US population is impervious to scientific facts, such as belief in human-induced climate change, it is difficult to communicate vaccine-related information to patients.

Parent-physician communication in such conditions is challenging and, if done improperly, may worsen the problem. Although the evidence base for vaccine-related communications is still emerging, we present developments in social and behavioral communication, behavioral economics, social psychology, and persuasion phenomenon, not only for parents but also for physicians. For example, physicians who graduated from medical school between 1995 and 2002 had relatively less favorable attitudes regarding vaccines compared with those who graduated between 1954 and 1964.[4]

Countering Misinformation and the Boomerang Effect

The instinctive response to vaccine-related misinformation is to provide correct information. However, this information correction–based approach has limitations and can backfire. For many, processing information on controversial topics occurs in a way that preserves pre-existing beliefs. Individuals who receive messages opposing their pre-existing beliefs may not just resist challenges to their views but support their original opinion even more.[5] Coined the *boomerang effect* by psycholo-

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Thank You

@SaadOmer3