Communicating About Vaccines Effectively Within Your Communities

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Vaccine HESITANCY:
Accept some, delay some, refuse some

Vaccine hesitancy: a delay in acceptance or refusal of vaccines, despite available services. Is complex and context specific, varying across time, place, and vaccine.
Impact of Vaccine Hesitancy
Ease of Obtaining Vaccine Exemptions – by State

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

Figure (with updated 2013 data) created by Mother Jones
Cumulative Epidemic Curve of 16 Measles Outbreaks 2000 - 2015, United States

Vaccination status of measles cases by week

Unvaccinated
Unknown vaccination status
Vaccinated

Phadke et al. JAMA, 2016
Correct misinformation regarding vaccine safety?
Limitations of Fact-based Messaging

Main points:
1) Outcome persisted even when knowledge scores increased
2) Misperceptions may not be overcome with knowledge alone

Nyhan & Reifler, 2015
Simple linear regressions of each bias on VCS score

The higher the VCS score, the more vaccine confidence one has.
Values, Attitudes, Intentions, Actions

Values

Moral Psychology, Anthropology

Attitudes

Persuasion Theory

Intentions

“Novel” Behavioral Insights/ Nudges

Actions

_Omer for Gavi, 2016_
Approaching Hesitant Parents: Framing, Content and Culture

How you discuss and promote vaccines is as important as *what* you say.

- **Framing**: Structure of message delivery
- **Content**: What you recommend or endorse
- **Culture**: How you make vaccination routine
Affect vs. Cognition
**BMW AG**

**1.5L TURBOCHARGED DOHC I-3**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Displacement:</strong></td>
<td>1,499 cc</td>
</tr>
<tr>
<td><strong>Block / head material:</strong></td>
<td>aluminum / aluminum</td>
</tr>
<tr>
<td><strong>Horsepower (SAE net):</strong></td>
<td>134 @ 4,500-6,000 rpm</td>
</tr>
<tr>
<td><strong>Torque:</strong></td>
<td>162 lb.-ft. (220 Nm) @ 1,250 rpm</td>
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<tr>
<td><strong>Specific output:</strong></td>
<td>80 hp/L</td>
</tr>
<tr>
<td><strong>Bore x stroke:</strong></td>
<td>82 x 94.6 mm</td>
</tr>
<tr>
<td><strong>Compression ratio:</strong></td>
<td>11.5:1</td>
</tr>
<tr>
<td><strong>EPA city / Highway:</strong></td>
<td>29 / 40 mpg</td>
</tr>
<tr>
<td><strong>Assembly site:</strong></td>
<td>Hanss Hall, Warwickshire, U.K.</td>
</tr>
<tr>
<td><strong>Application tested:</strong></td>
<td>'15 Mini Cooper Hardtop</td>
</tr>
</tbody>
</table>
You know you’re not the first.

But do you really care?
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With a fuel-efficient TwinPower Turbo 2.6L-hp, 4-cylinder engine, the all-new 3 Series propels you from 0 to 60 in 6.9 seconds while still giving you 33 mpg highway.* Meanwhile, the Head-Up Display and the Connected-Drive infotainment system bring the outside world within arm’s reach. A rebirth has never felt more familiar.

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*Acceleration claim based on BMW AG test results. Figures based on 23 mpg city/33 mpg highway 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. ©2012 BMW of North America, LLC. The BMW name, model names and logo are registered trademarks.
Intervention 1: Cognitively-Based iPad App

Vaccines for a Healthy Pregnancy

1. Introduction to Tutorial
2. About Flu and Whooping Cough
3. Getting Vaccinated During Pregnancy: The Flu and Whooping Cough Shots
4. Vaccine Safety During

What are flu and whooping cough, and how do they affect pregnant women?

Both Flu and whooping cough:
- Are highly contagious
- Affect the lungs, throat, nose, and sinuses
- Flu can be more serious during pregnancy due to changes in your body and immune system

For my baby?
Studies have shown that getting vaccinated for flu during pregnancy can reduce the likelihood that your baby will be born prematurely or of low birth weight. By protecting yourself from getting sick, you increase the chances your baby stays healthy and is born on time.

Protective antibodies that you produce in the shots have been shown to pass from your blood to the baby through your amniotic or umbilical cord. Antibodies also pass through breast milk, which is extremely important for protecting your newborn before they are able to get shots themselves. Babies cannot receive their first whooping cough vaccine until they are 2 months old, and they cannot receive flu vaccine until they are at least 6 months old. Protecting yourself through vaccination is the best way to protect your baby during their most vulnerable few months.

Seeing a baby suffer from whooping cough is terrible. The babies struggle to breathe through bouts of terrible coughing. Doing whatever you can to prevent your newborn from getting sick with whooping cough is important.

For the Flu:
To protect yourself, pregnant women should get the inactivated flu shot, not the nasal spray form of the vaccine. The sooner you get the shot, the better. CDC recommends that the flu shot can be given at any point during pregnancy. The flu season in the United States runs from September – May. Flu shots are often available by September, and in some cases even in August. Whether you are pregnant at any point during flu season, or are planning to have your baby during flu season, it is important to get your vaccine.

For Whooping Cough:
The Tdap shot is the vaccine which protects you from whooping cough. While it’s safe to get Tdap any time during pregnancy, it’s best to wait until your second or third trimester. 20-25 weeks or later to make sure your fetus gets the most benefits it can right before birth.

Can I get both shots at the same visit?
Yes. It is safe to both you and your fetus to get birth shots at this:

How do I know the benefits of getting these shots outweigh the risks?
Intervention 2: Affectively-Based Video
Tdap Vaccination During Pregnancy and Postpartum

- **Total**: 31.6%
  - During pregnancy: 25.3%
  - Immediately postpartum: 6.3%

- **Perinatal**: 25.3%
  - During pregnancy: 6.3%
  - Immediately postpartum: 19.0%

- **Control**: 17.7%
  - During pregnancy: 5.9%
  - Immediately postpartum: 11.8%

- **Video**: 29.0%
  - During pregnancy: 6.4%
  - Immediately postpartum: 22.6%

- **iPad App**: 50.0%
  - During pregnancy: 6.7%
  - Immediately postpartum: 43.3%
Engagement with the Interventions

- Engaged/very engaged: Video Arm 88%, iPad App Arm 56%
- Learned something about vaccines: Video Arm 90%, iPad App Arm 93%
- I could really relate: Video Arm 68%, iPad App Arm 37%
- I clearly understood the material: Video Arm 97%, iPad App Arm 77%

*p<0.05
How can we leverage power of defaults
Preliminary Data: How the vaccine conversation is started matters

“It’s time for Johnny to get vaccinated.”

“What do you think about vaccinating Johnny at this visit?”

- Presumptive (74%; n = 69)
  - Accepts (74%; n = 51)
  - Resists (26%; n = 18)
- Participatory (26%; n = 24)
  - Accepts (4%; n = 1)
  - Provides own plan (13%; n = 3)
  - Resists (83%; n = 20)

Opel et al 2013
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

Omer, Amin, and Limaye 2017
Framing
Ending with Self-Efficacy

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

Provide parents /patients with actions they can take to protect themselves (self-efficacy\textsuperscript{8,9})

Now you should address the vaccination again
The single best way to protect yourself AND your baby


Key Point: Follow severity with self-efficacy
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

Call toll-free at 1-877-4-LOW-LDL (1-877-456-6535) or visit www.makingtheconnection.ca and you will receive this free booklet describing the connection between cholesterol and heart disease.
We are excellent linguists but poor statisticians
“people judge the probability of events by the ease in which instances could be brought to mind”
## Content

### What Matters to Parents?

<table>
<thead>
<tr>
<th>If you vaccinate your child:</th>
<th>If you don’t vaccinate your child:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The chance of having vaccine associated side effects is:</strong> 20 in 100,000 children vaccinated</td>
<td><strong>The chance of having the disease is 20,000 in 100,000 children</strong></td>
</tr>
</tbody>
</table>

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.

**Main point:** Narratives of disease severity resonate more than statistical probabilities

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Sadique et. al, 2013
What to do when you cannot get out of correcting a myth?
Addressing a Myth

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

- Clearly state that the 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 the belief in the myth used to reside

*Cook and Lewandowsky, 2011*
Healthcare Facility Culture
Incorporate vaccination into a prenatal care checklist

Encourage health facility staff to use presumptive language too

“It’s time for your vaccine.” instead of “Do you want the vaccine?”
Incorporating Values into Messaging
Haidt, The Righteous Mind
The Liberal Moral Matrix

Most sacred value: care for victims of oppression
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
High vs. Low Hesitancy Parents

Adjust Odds Ratios

Authority  Fairness  Harm  Loyalty  Purity  Liberty

Summary of the Current State of the Evidence

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
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
Communicating About Vaccines in a Fact-Resistant World

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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. 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.

**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. Coined the boomerang effect by psycholo-
Thank You
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