Innovations in communication: The Internet and vaccination decisions

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risk

communication

perception

internet

vaccination

anti-vaccination

parents

decision

search

web2.0

patients

e-health

safety
Overview

› The vaccination decision

› The importance of the Internet as a source for health information
  › What is the „innovation“ in social media communication?

› What is the specific problem regarding vaccination decisions and the Internet?

› The Internet as an opportunity for health communicators

› Desiderata for future research
The vaccination decision

Pre-selectional phase
- Information search

Selectional phase
- Risk perception
- Decision, Intention

Post-selectional phase
- Behavior implementation
- Experience/Feedback

- Risk perception strong predictor of vaccination behavior ($r = .26$, Brewer et al., 2007)
- Focus usually on risk to contract an illness
- Only recently: focus also on perceived vaccination risks
Focus

Pre-selectional phase

- Information search
- Risk perception
- Decision, Intention

Selectional phase

Internet

CEREB
Center for Empirical Research in Economics and Behavioral Sciences
Search volume index for „vaccination“ (DEC 2010)
„hot topics“

› “topics with the most buzz in the news, on Twitter, FriendFeed, or on other similar sources” (google trends)

A. Whooping cough deaths spark vaccination debate
   ABC.net.au - Sep 3 2009

B. British girl dies after cervical cancer vaccination
   Ottawa Citizen - Sep 29 2009

C. All PEI swine flu vaccination clinics postponed
   CBC.ca - Oct 30 2009

D. Canada shrugs off cost of flu vaccination campaign
   Forbes - Nov 12 2009

E. HPV vaccination delayed by swine flu program
   CBC.ca - Nov 25 2009

F. Regina extends H1N1 vaccination clinic
   CBC.ca - Jan 4 2010
Relative importance of the Internet

- Mean importance ratings (Dumitru et al., 2007 for Germany):
  - Direct face-to-face contact with health professionals (4.3)
  - Family, friends, colleagues (3.6)
  - Books, leaflets, encyclopaedias (3.6)
  - Pharmacies (3.5)
  - Newspapers/magazines (3.5)
  - TV/radio (3.4)
  - Internet (2.9)
E-Health Trends in Europe
(Kummervold et al., 2008)

› Reported importance of the Internet is rising
  › “even if the Internet is at the bottom of the list, there is just a small, non-significant difference between the Internet and more traditional media such as books, newspapers, and magazines. As the latter media decrease in importance and the Internet increases, it is legitimate to predict that the Internet might surpass them over the next few years”

› More interactive use with health professionals as well as with peers in forums
  › “second generation of Internet health users” → web 2.0 activities
What is the „innovation“ in social media communication?

› Web 2.0 (O‘Riley, 2005)
  › “associated with web applications that facilitate interactive information sharing, interoperability, user-centered design, and collaboration on the World Wide Web. A Web 2.0 site gives its users the free choice to interact or collaborate with each other in a social media dialogue” wikipedia, DEC 2010

› User generated content
  › Everyone can contribute
  › „prosumer“ = consumer and producer of the information

› Social networks * forums/discussion boards * Blogs * Guest books
In a nutshell

› The reported importance of the Internet in health decisions is still low
› The importance of the Internet rises
› More interactive use (e.g. in social media)

› However, the fact that individuals do not report the Internet to be an important source of information does not necessarily mean that the information obtained in their frequent Internet searches is not influential in their decisions!
The Internet as a source of vaccination information

- Mental model about vaccination determines search terms (Downs et al., 2008)
  - More complex models, more complex search terms (MMR vaccination vs. vaccination)
  - Anti-vaccine websites rank higher than pro-vaccine sites with searches using simple terms

- Pandora’s box: Anti-vaccination misinformation on the Internet (Kata, 2010)
  - Google search terms *vaccine, vaccination, and immunization*
  - Examination of the first 10 hits
  - 24% were classified as anti-vaccination
The Internet as a platform for anti-vaccination activists

- Safety issues (100%)
  - Vaccines contain poisons/toxins/contaminants
  - Vaccines cause illnesses of unknown origin (e.g. autism, SIDS)
- Alternative medicine (88%)
  - Promoting treatments superior to vaccination (e.g. homeopathy)
- Connectedness (100%)
  - Links to anti-vaccination sites present
- Emotive appeals (88%)
  - Narratives about harmed children/personal experiences
  - Pictures of harmed children/scary needles

Kata, 2010
Social media example

07/12/2010

Matt LaFleur A Canadian school called police on a 12-year-old who got angry and did not want to be vaccinated. Not only was it blown out of prop with the Police, but a message is sent to other students who may be reluctant to get vaccinated.

Police Arrested Twelve Year Old Boy for Refusing Vaccine at School

www.wellnessuncovered.com

Wellness Uncovered - Your Source for up to date Natural Health News and Information

2 hours ago · Share

Vaccination Information Network (VINE) My child had adverse events
3 vaccines at age 14 mths: dilated pupils, hallucinating, brain inflammation, seizures. She had started acting strangely on the car ride home, looking confused and looking at me as if to say something’s happening. I was very worried, but tried not to go there. I kept telling myself...

See More

Parents who changed their minds about vaccination

Monika Wilcoxen Pertussis vaccine may cause: fevers >106, pain swelling, diarrhea, projectile vomiting, excessive sleepiness. high--
The effect of the obtained information (Betsch et al., 2010)

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>Manipulated information search</th>
<th>Dependent variables</th>
</tr>
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<tbody>
<tr>
<td>Vaccination risks</td>
<td>5-10 minutes, self-paced</td>
<td>Vaccination risks</td>
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<td>Vaccination intentions</td>
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<td>neutral</td>
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<td>anti-vaccination</td>
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Decreasing vaccination intentions

Betsch et al., 2010

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Increasing vaccination risk perceptions

- those who perceived greater vaccination risks following information search vaccinated their children less during the subsequent 5 months

Betsch & Renkewitz (2009)

Betsch et al., 2010
Narratives
A characteristic type of information

- Our son had strong reactions a few days after the vaccination (fever, rash), which also continued much longer than usual. He was often depressed and had definitely less energy in the following days. It was even becoming worse: After a few months, Diabetes mellitus type 1 was diagnosed. He got blisters on his neck, later also on his face and his elbows, which dried up after a few weeks and then disappeared. After the second shot, this all appeared right on the same day.

Authentic case; from Betsch et al., in press
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A characteristic type of information

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Preference for narrative information

- Active Information Search (Huber et al., 2001)
  - Information searchers ask for the consequences in the first place
  - Only half on the information searchers asked for probability information
  - Preference for knowing how something is rather than how likely

- Especially parents who perceive great vaccination risks have a preference for parental, narrative information (Betsch & Renkewitz, 2009)
Effect of narrative information on vaccination intentions

Betsch et al., in press
In a nutshell II

- Parents want to know *how it is* if vaccine-adverse events occur (rather than how likely)

- People look for narratives especially when they already perceive vaccinations risks to be high

- Narratives are easily available due to social media

- The more narratives are encoded, the higher the perceived vaccination risk and the lower the vaccination intentions
The Internet as an opportunity for health communicators

› Risk Communication

http://www.who.int

› Risk Negation
Germans Unhappy with Alternative Swine Flu Vaccine for Politicians

Der Spiegel, October 2009
Vaccination – 20 objections and responses

Translated from German by ECDC.

This document contains a list of objections frequently raised by people opposed to vaccination and responses from immunisation specialists. It was jointly prepared in 2007 by the Robert Koch-Institute and the Paul-Ehrlich-Institut, Germany, and was originally directed at a German audience. ECDC has now translated this document into English with the aim of making it accessible to a wider audience.

The original German version is available at: http://www.rki.de/impfeinwaende
The Internet as an opportunity for health communicators

› Risk communication and negation in a minefield
  › What is the minefield?
    › Context: Presence of anti-vaccination information
    › Source: credibility important
    › Factors that might interact with the content of the message
Vaccination campaigns in the context of anti-vaccination information

› Disabled due to the measles (fear appeal)

› Healthy due to MMR vaccination (prevention appeal)

Vaccination intention

Daniel (10)

Betsch & Könen, 2010
“There is no risk“
Risk negations can increase perceived health risks

- Risk Negation
  - Participants encoded strong vs. weak negations of vaccination risks
  - Stronger risk negations paradoxically led to higher risk perceptions, while weaker negations led to lower risk perceptions
  - Strong risk negations by incredible sources increase risk perceptions

Betsch & Sachse, submitted
In a nutshell III

› Risk communication and negation on the Internet need to consider the context
› Be aware of concurrently available anti-vaccination information
› Source credibility important, especially when risk is negated
Where do we go from here?
Open questions and desiderata

› Need for more research settings that assess the actual influence of the obtained information (instead of gathering self-reports about the “importance” of the Internet)

› Need for long-term surveys to assess the development and change of risk perceptions and vaccination intentions as a consequence of Internet-information searches

› (How) can we use the natural preference for narratives / social media to aid vaccination decision making? Can we merge innovative social-media and a classical decision aid approach?
Thank you very much for your attention.

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