Risk Communication in Infectious Outbreaks

Roberta Villa, Zadig

www.asset-scienceinsociety.eu

co-funded by the EU. GA: 612236
Risk Communication in Infectious Outbreaks

Roberta Villa, Asset project
2 EU funded projects

TELL ME:
Transparent communication in Epidemics: Learning Lessons from experience, delivering effective Messages, providing Evidence

http://tellme trebuie.eu/

ASSET:
Action plan on Science in Society related issues in Epidemics and Total pandemics

http://asset-scienceinsociety.eu/
A different kind of disaster

- In case of environmental or nuclear accidents, fires, earthquakes, floods, other catastrophes you have
  - less time (minutes, hours)
  - limited disaster zone

- In case of an infectious outbreak you usually have
  - more time (days, weeks, months)
  - more risk of spread
Risk Communication in Infectious Outbreaks

- Outbreaks, epidemics, pandemics are political issues
- Risk and crisis communication: main principles and a few simple rules
- Case studies: pandemic influenza 2009 A (H1N1), ebola, (MERS)
- New challenges
An ongoing transition...
...not eliminating infectious threats, though

- ↑ travel, trade and tourism
- environmental degradation
- unplanned urbanization, poverty
- natural disasters
- refugee crises and population displacement
- vaccination hesitancy and refusal
New emerging or re-emerging infectious threats

- chikungunya
- cholera
- meningitis
- plague
- viral haemorrhagic fevers (Ebola, Marburg, Rift Valley fever, yellow fever and Lassa fever)
- polio
- (measles)
- SARS/MERS
What makes an infectious threat?

- Virus vs bacteria
- Emerging disease/High mutability → Less immunity
- Airborne
- High person-to-person transmission
The best candidate?

INFLUENZA!!
## 20th CENTURY FLU PANDEMICS

<table>
<thead>
<tr>
<th>Pandemic</th>
<th>Year</th>
<th>Influenza Virus type</th>
<th>People infected</th>
<th>Estimated deaths</th>
<th>Fatality rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spanish flu</td>
<td>1918-19</td>
<td>H1N1</td>
<td>500 Million</td>
<td>20-100 million</td>
<td>&gt;2.5%</td>
</tr>
<tr>
<td>Asian flu</td>
<td>1956-58</td>
<td>H2N2</td>
<td>n.a.</td>
<td>2 million</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td>Hong Kong flu</td>
<td>1968-69</td>
<td>H3N2</td>
<td>n..</td>
<td>1 million</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td>Seasonal flu</td>
<td>Yearly</td>
<td>H3N2, H1N1, B</td>
<td>340 million-1 billion</td>
<td>250,000-500,000</td>
<td>&lt;0.1%</td>
</tr>
<tr>
<td>Swine flu</td>
<td>2009-10</td>
<td>H1N1</td>
<td>622,482 (lab confirmed)</td>
<td>14,286 (ECDC)</td>
<td>0.03%</td>
</tr>
</tbody>
</table>

## NARROW ESCAPES

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>SARS</td>
<td>2003-2004</td>
<td>coronavirus</td>
</tr>
<tr>
<td>Bird flu</td>
<td>2003-now</td>
<td>H5N1</td>
</tr>
</tbody>
</table>
Deaths for swine flu

18,500 (WHO 2010)

>284,000 (Lancet Inf Dis 2012)
Words matter

- Infectious outbreak
- Epidemic
- PANDEMIC

- ↑ cases than expected in a limited area
- ↑ cases than expected in a wider area
- ?
What we talk about when we talk about...Pandemics?

PANDEMIC: “..epidemic occurring **worldwide**, or over a very wide area, crossing international boundaries and usually affecting a **large number of people**”

Last J. *A dictionary of epidemiology (4th Edition)*
Oxford University Press 2001

**NOT ONLY INFLUENZA, NO SEVERITY TOO GENERIC**
What we talk about when we talk about...Pandemics?

- 2003 “..when a new influenza virus appears against which the human population has no immunity, resulting in several simultaneous epidemics worldwide with enormous numbers of deaths and illness”.
- 2009 “..when a new influenza virus appears against which the human population has no immunity” WHO website
What we talk about when we talk about... Pandemics?

- 2009 «An influenza pandemic occurs when an animal influenza virus to which most humans have no immunity acquires the ability to cause sustained chains of human-to-human transmission leading to community-wide outbreaks. Such a virus has the potential to spread worldwide, causing a pandemic»

2009 WHO Pandemic influenza preparedness and response
WHO 2009 pandemic scale

2009 WHO Pandemic influenza preparedness and response
WHO 2009 pandemic scale

- **Phase 6**, the pandemic phase, is characterized by community level outbreaks in at least one other country in a different WHO region in addition to the criteria defined in **Phase 5** (2 countries in the same WHO region, ndr)
The six regions of the World Health Organisation

- American
- European
- African
- South East Asian
- Eastern Mediterranean
- Western Pacific
WHO 2013 pandemic scale

- CONTINUUM
- FOCUS ON RISK ASSESSMENT

Pandemic Influenza Risk Management
2013 WHO Interim Guidance
Different points of view

- **viral characteristics** (virologists)
- **severity/lethality** (clinicians)
- **geographical extension and/or number of cases** (epidemiologists)
- **socioeconomical impact** (policy makers and other stakeholders)

What about common people?
But....for the general public?

- Pandemic = catastrophe
Swine flu

- If it isn’t a catastrophe it isn’t a pandemic
As fear goes by...

**Figure 11.** The relative proportion of tweets expressing concern from May 1 to December 31 2009. Blue = concern for others. Red = concern for self. Yellow = concerned emoticons. Green = general concern. A = June 11: WHO pandemic level 6 announcement. 1 = July 5: Harry Potter actor Rupert Grint has H1N1. Reproduced under the Creative Commons license. Taken from *Pandemics in the Age of Twitter: Content Analysis of Tweets during the 2009 H1N1 Outbreak*, Chew, C., Eysenbach, G. 2010, *PLoS ONE* 5(11) p.9, Fig.9.
...humour (and suspect) come in
Some responses

- Rap by Dr Clarke
- CDC surprise

Winner of the US Dept. of Health & Human Services 2009 Flu Prevention Video PSA Contest

https://youtu.be/_gwUdmPl0bU
HALLOWEEN

Sexy Ebola Nurse Costume
SKU: 448697477
Price: £45

Sexy Ebola Nurse Costume includes:
- Hazmat Dress
- Hazmat Leggings
- Safety Goggles
- Prop Gas Mask

* PLEASE NOTE: this item is not suitable for protection against hazardous materials.

ADD TO CART
“There is no reason for which an influenza pandemic has to be more or less severe than the preceding interpandemic (seasonal) influenza”.

“Severity has never been part of the WHO definition of a pandemic”

ECDC
2009 A(H1N1) pandemic impact

- ↓ Trust in authorities
- ↓ perception of pandemic risk
"During the peak of the pandemic, only 18% of participants stated that they perceived the risk of pandemic influenza as high; this proportion fell to 10% in January 2010."

Risk perception and information-seeking behaviour during the 2009-2010 influenza A (H1N1) pandemic in Germany. Eurosurveillance, 2012; vol 17, issue 13
Fear of pandemics has vanished since 2009 (coincidence with the global economic crisis)

WEF Global Risks Perception Survey 2013-2014
Economic (and environmental) concerns prevail (WEF Global Risks Perception Survey 2013-2014)
Economic (and environmental) issues

Health issues
A political issue

- A government may be held accountable by its **voters** and **international community** for its handling of an outbreak.

- Communication and management strategy may have deep **socioeconomical impact**, **nationally and internationally**
International Health Regulations (IHR 2005)

Public Health Emergency of International Concern

Is defined as “an extraordinary event which is determined…

- to constitute a public health risk to other States through the international spread of disease; and
- to potentially require a coordinated international response”.
Public Health Emergency of International Concern (PHEIC)

- serious
- unusual or unexpected
- implications for public health beyond the affected State’s national border
- may require immediate international action

WHO
http://www.who.int/ihr/procedures/pheic/en/
The unique features of outbreaks

- urgent public health emergency
- unpredictable
- alarming for the public
- socially and economically disruptive
- strong political dimensions
- spread has behavioural component
- eminently newsworthy

(WHO 2005)
Big policy issues

- Transparency
- Quarantine, school closure, trade and travel restrictions,...
- Decisions about vaccines and drugs supply and distribution (priorities?)
- ....
Strategies count

BMJ 2009;339:b4571
Room for intervention

FIGURE 1

Proactive Communication in Infection Control

Rapid public health response, including proactive communication of real or potential risk

Source: adapted from figure 2, page XII, World Health Report 2007
US Media (October 2014)
It’s all about politics

Ebola becoming political issue

ST. PAUL — Ebola is becoming more than just a health issue as it moves to forefront of politics in Minnesota.

Republican Senate candidate Mike McFadden has repeatedly raised questions about the federal response and brought it up in debates with Democratic Sen. Al Franken. Meanwhile, as Gov. Mark Dayton wages his own re-election fight, he’s taken several steps aimed at readiness. Dayton announced Monday a new set of guidelines to monitor people who have recently traveled to West Africa.

HOW TO SOLVE THE EBOLA PROBLEM IN THE U.S.:
1. RESTRICT TRAVEL FROM COUNTRIES THAT ARE INFESTED WITH THE EBOLA VIRUS
2. GET A NEW U.S. PRESIDENT
It’s all about politics

US Media (October 2014)
Some important «political» issues

- Naming (swine flu, MERS, ...)

This disease it needs a name. Which animals should we defame?
Africa = Ebola?
- Touristic reservations in September 2014 (↓20-70%)
Ebola fears ripple across continent to hurt east African tourism

By Edith Honan
NAIROBI | Wed Oct 29, 2014 4:00pm EDT


Kentucky Teacher Resigns Over Parents' Dumb Ebola Fears

By Margaret Hartmann
Follow @marghartmann

A teacher at St. Margaret Mary Catholic School in Louisville, Kentucky, who recently returned from a medical mission trip to Africa has resigned rather than submitting to a paid 21-day leave and producing a doctor's note that says she is in good health. The school's request was a reaction to "strong parent concerns" about Susan Sherman exposing students to Ebola — though she was in Kenya, which is separated from the Ebola outbreak by at least five countries.
With sincere regret, I must report that Navarro College is not able to offer you acceptance for the Spring 2015 term. Unfortunately, Navarro College is not accepting international students from countries with confirmed Ebola cases.

Although you may be disappointed, my personal wish is that you find fulfillment studying at another fine college.

Please find enclosed herein your original documents for your records.

All requests for housing deposit refunds should be sent to nc.international@navarrocollege.edu. Please include your name and a U.S. address for us to send the deposit.

Thank you for applying to Navarro College and we send our best wishes for a successful academic career.
@Laurie_Garrett: I could see a horrible stigmatization unfolding against ppl in West Africa, including countries w/ no Ebola.

#CFRLive
Personnel back: quarantine?
The role of the press and the new media

- Scrutinizes any government’s action
- Influences public confidence in leaders and colour personal perceptions of the risk
- Impacts on behaviours that amplify the social and economic consequences of an outbreak and feed back into political concerns.
“In the next influenza pandemic, be it now or in the future, be the virus mild or virulent, the single most important weapon against the disease will be a vaccine.

The second most important will be communication.”

Ambivalence

- Despite new infectious threats keep on emerging, **risk perception** in the public in the last years was **low**

AMR bugs

(Polio)  
H5N1  Dengue  
MERS-Cov  H7N9  Ebola
A perfect storm?

“The U.S. and the world now face a perfect storm of disease threats. New and virulent pathogens...emerge every year. Diseases respect no borders...Pathogens are becoming more resistant to antimicrobial drugs, and the possibility of bioterrorism continues to grow as new technologies make bioengineering cheaper and easier.” (5th May 2014 CNN.com)

Dr Tom Frieden, CDC Director
Tasks and tuning of risk communication

1. Low alarm about a serious hazard
2. Excessive alarm about a small hazard
3. Right alarm about a serious hazard

1. ↑ concern and motivate to right actions (influenza)
2. ↓ concern and deter from unnecessary and potentially harmful actions (ebola out of Western Africa)
3. harness concern and guide behaviours (ebola in Western Africa)
Effective Risk Communication

BEHAVIOUR

Local, specific conditions

COMMUNICATION IS NOT ONLY INFORMATION

- ↓ number of cases and deaths
- ↓ socioeconomic impact
Communication can save lives
In the specific setting

- Bush-meat
- Contact with patients
- Burial practices
- Suspect towards government
- Suspect towards western people
Risk and crisis communication

1) **Psychometric model** (Peter Sandman, Vincent Covello):
Psychometric model

- risk perception
- mental noise
- negative dominance
- trust determination
Risk perception

“The risks that kill people and the risks that alarm them are completely different”

Covello & Sandman, 2001
Peter Sandman’s Formula

- Effective risk is different by its perception

\[ R = H + O \]

- \( R \) = Perceived risk
- \( H \) = Hazard, effective risk
- \( O \) = Outrage, what makes «offensive» the risk
Definition of risk (hazard)

- Possibility that something bad or unpleasant (such as an injury or a loss) will happen (*from* Merriam-Webster)

- **PROBABILITY**

- **SEVERITY**
Paul Slovic (in the 70s)

- Dread
- Control
- Nature vs. man-made
- Choice
- Children
- Novelty
- Publicity
- Propinquity
- Risk-benefit tradeoff
- Trust
Some components of outrage

**More acceptable**
- Voluntary/controlled
- Natural
- Familiar/known
- Not memorable/Chronic
- Fair
- Morally irrelevant
- Trustworthy sources

**Less acceptable**
- Coerced/controlled by others
- Industrial
- Exotic/unknown
- Memorable/Catastrophic
- Unfair
- Morally relevant
- Untrustworthy sources
Mental noise

«When people are in a state of high concern because they perceive a significant threat, their ability to process information effectively and efficiently is severely impaired...»

A previous «map» can help

A=20%
Simple messages!!
Use of templates

- **KISS**: Keep It Simple and Short

- **“Rule of 3”**
  - 3 Key Messages
    - (27 words, 9 seconds, 3 messages)
  - Repeat messages at least 3 times
  - Provide 3 supporting facts or credible sources for each key message

Copyright, Dr. V Covello, Center for Change/Risk Communication
Negative dominance

- When people are upset they put greater value on losses and other negative information or outcomes than on gains or positive information and outcomes.

\[ N=3P \]

CONTERBALANCE in risk communication!!
Trust determination

- When people are upset they commonly do not trust authority

Build it in «TIME OF PEACE»!!
Other cognitive bias

- Omission bias
- Neglecting probability
- Correlation and causation
- Confirmation and ingroup bias (social networks) (see Nyhan Pediatrics 2014)
Adapted Sandman’s Formula

\[ R = H + O \]
Risk and crisis communication (alternate models)

2) Risk society (Ulrich Beck)
3) Three epidemics (Philip Strong)
4) Blaming System (Mary Douglas)
5) Bourdieu’s arena (Graham Murdoch)

Thomas Abraham
Risk and outbreak communication: lessons from alternative paradigms.
Bulletin of the WHO 2009; 87: 604-607
Risk society

- Risk society is "a systematic way of dealing with hazards and insecurities induced and introduced by modernization itself"

-Ulrich Beck

"Something's just not right—our air is clean, our water is pure, we all get plenty of exercise, everything we eat is organic and free-range, and yet nobody lives past thirty."

Ulrich Beck
Three epidemics

- **EPIDEMIC OF FEAR**: widespread suspicion («plague», stigma, ...)

Philip Strong
Three epidemics

- **EPIDEMIC OF EXPLANATION**: society’s attempts to find causes for the epidemic and to understand its scope and consequence
- **EPIDEMIC OF ACTION** (or of proposed action): competing control strategies
Blaming system

- Whose fault?
- what action?
- which means?
- what damages?
- what compensation?
- what restitution?

Mary Douglas
Bourdieu’s arena

- policy
- experts
- campaigning groups
- opposition
- media
- general public

Graham Murdoch
New Framework Model for Risk communication in outbreaks

University of Haifa, TELL ME project
Risk assessment

Expert risk assessment

HAZARD

Risk communicators
Risk assessment
HAZARD+OUTRAGE

Public risk assessment (sometimes)

OUTRAGE

Taken from: www.inspection.gc.ca/english/corpaffr/publications/riscomm.shtml
2005 WHO guidelines for risk communications

- building trust
- announcing early
- being transparent
- respecting public concerns
- planning in advance

NOT ENOUGH!
EPA Seven rules

- Accept and involve the public as a legitimate partner.
- Listen to the audience.
- Be honest, frank, and open.
- Coordinate and collaborate with other credible sources.
- Meet the needs of the media.
- Speak clearly and with compassion.
- Plan carefully and evaluate performance.
Ten points for an effective pandemic communication

To train health workers by giving them a clear understanding of what to tell to the population in case of a real pandemic.
To not censor or soften information, since it is just a matter of time before censorship is unmasked, and such an unmasking will always lead to suspect and discredit.
To be flexible in terms of communication, being ready to correct any information if and when the situation changes.
To plan the communication in synchrony with the different stages of the outbreak.
To be careful with the terms used, in order to avoid any risk of social stigmatization.
To avoid contradictory claims from experts and representative of public health institutions.
To not have a detached attitude when dealing with urban myths that thrive around pandemic and vaccines.
To tailor the communication register based on the different targets.
To make clear that there is a component of uncertainty when predicting the evolution of a pandemic.
To establish a communication leadership, way before the appearance of a pandemic.

TELL ME decalogue

1) HCPs
2) Transparency
3) Flexibility
4) Planning in synchrony with different phases
5) Avoid stigma
6) Consistency
7) Never ridicule
8) Tailor communication
9) Highlight uncertainty
10) Communication leadership in advance
Other principles for an effective risk communication

- **Listening/Caring/Empathy/Compassion**: 50%
- **Competence/Expertise**: 15–20%
- **Honesty/Openness**: 15–20%
- **All Other Factors**: 15–20%

Assessed in first 9–30 seconds

“People Want To Know That You Care Before They Care What You Know” Covello
CDC’s H1N1 Communications

“First I want to recognize that people are concerned about this situation. We hear from the public and from others about their concern, and we are worried, as well.”

Dr. Richard Besser, CDC Acting Director
H1N1 News Conference, April 24, 2009
Sandman’s practical rules

- Don’t over-reassure
- Put reassuring information in subordinate clauses.
- Acknowledge uncertainty
- Don’t overdiagnose or overplan for panic
- Don’t ridicule the public’s emotions
- Establish your own humanity
Sandman’s practical rules

- Tell people what to expect
- Offer people things to do
- Acknowledge errors, deficiencies, and misbehaviors
- Be explicit about “anchoring frames.”
- Don’t lie, and don’t tell half-truths
- Be careful with risk comparisons
Other Sandman’s rules

- **Err on the alarming side**
- Share dilemmas
- Acknowledge opinion diversity
- Be willing to speculate
- Do not aim for zero fear
- Legitimize people’s fears
Other Sandman’s rules

- Tolerate early over-reactions
- Let people choose their own actions
- Ask more of people
- Apologize often for errors, deficiencies, and misbehaviors
- Be explicit about changes in official opinion, prediction, or policy
- Aim for total candor and transparency
"Few other natural risks so equally threaten the entire human race with the stark possibility of widespread death within a few short weeks as does a severe influenza pandemic"

2006

What happens during a pandemic – how many people are affected?

This is impossible to predict. Certainly a higher proportion of the population become infected with the new influenza virus than with seasonal influenza.....

2012
ONE THING IS CERTAIN: UNCERTAINTY

«Public health officials need to insist on their uncertainty. They need to make uncertainty the message, not the preamble to the message». Peter Sandman
An influenza pandemic is more than an outbreak

- The 2009 pandemic brought to light other issues, such as:
  - the necessity for vaccination and vaccine safety;
  - the general quality of public health responses to influenza
  - long-term health communication and health promotion strategies focused on behaviour change (for example, cough and sneeze etiquette).

Thomas Abraham
2009 A (H1N1)

- First pandemic of the internet age
- Need for new strategies for effective web-based communication and use of social network tools
LESSONS LEARNT BY H1N1

“...in the past the main challenge was in dealing with the perception and communication of risks.

In future, we need to develop ways of better involving the scientific community and civil society.

The aim must be that risk is properly understood and trust maintained”.

ECDC The 2009 A(H1N1) pandemic in Europe
A review of the experience
New challenges

Needs
- Intersectorial approach
- Involvement of the general public
- Web-based and new social media strategy
- Ethic issues
- REBUILDING TRUST

ASSET project response
- MMLAP
- Citizens’ consultations
- Study of new strategies for analysis and intervention
- Stigma, gender
- ?
THANK YOU
FOR YOUR ATTENTION!

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