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ASSET

share and move to face nasty bugs

Risk Communication in Infectious Outbreaks

Roberta Villa, Zadig

ZADIG



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://tellmeproject.eu/>

ASSET:

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



share and move to face nasty bugs

<http://asset-scienceinsociety.eu/>

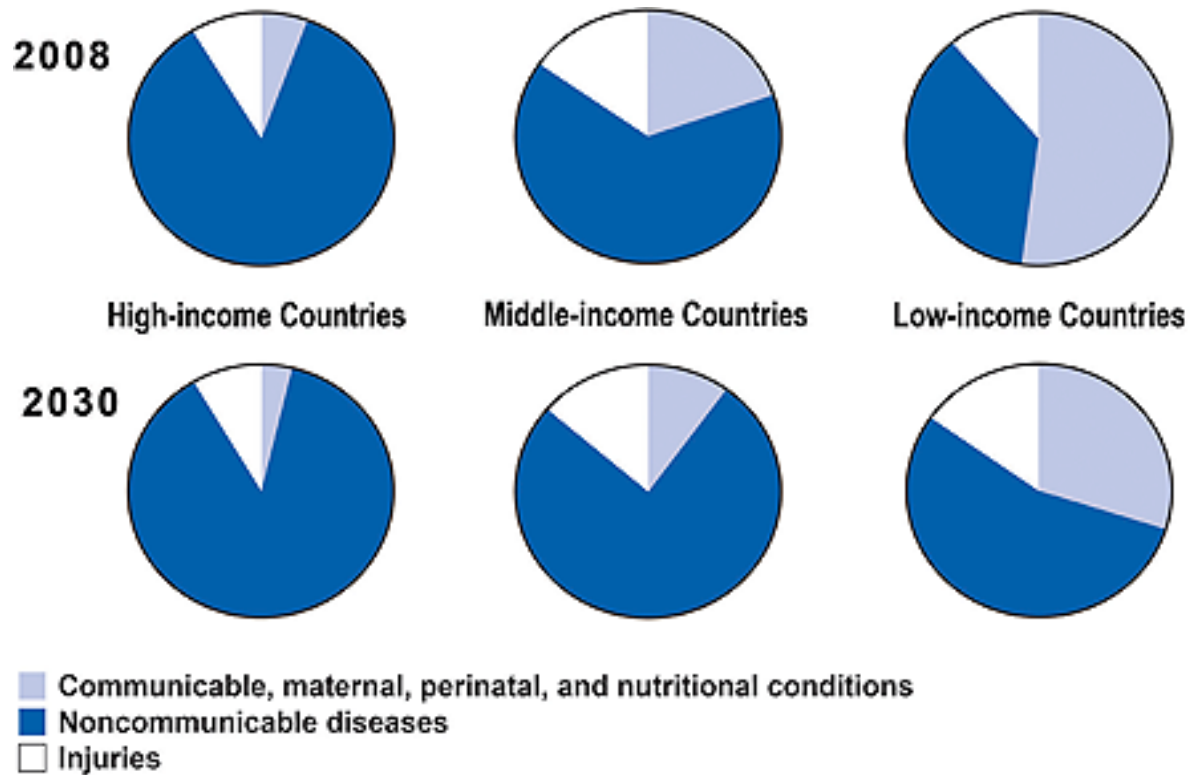
A different kind of disaster

- 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

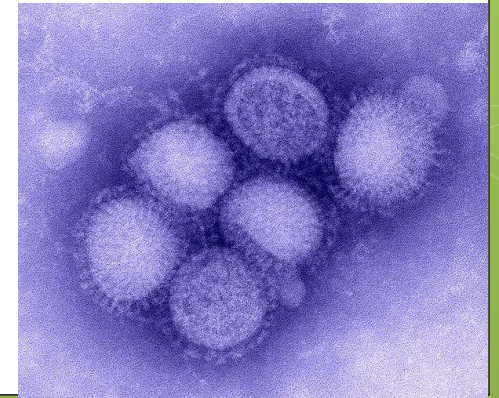
- ↑ travel, trade and tourism
- environmental degradation
- unplanned urbanization, poverty
- natural disasters
- refugee crises and population displacement
- vaccination hesitancy and refusal

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

Pandemic	Year	Influenza Virus type	People infected	Estimated deaths	Fatality rate
Spanish flu	1918-19	H1N1	500 Million	20-100 million	>2.5%
Asian flu	1956-58	H2N2	n.a.	2 million	<0.1%
Hong Kong flu	1968-69	H3N2	n..	1 million	<0.1%
Seasonal flu	Yearly	H3N2, H1N1, B	340 million-1 billion	250,000-500,00	<0.1%
Swine flu	2009-10	H1N1	622,482 (lab confirmed)	14,286 (ECDC) 8,700 (WHO) (lab confirmed)	0.03%

NARROW ESCAPES

SARS	2003-2004	coronavirus	8000 ≈	774 ≈	9,6%
Bird flu	2003-now	H5N1	600 ≈	300 ≈	50-60%

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?

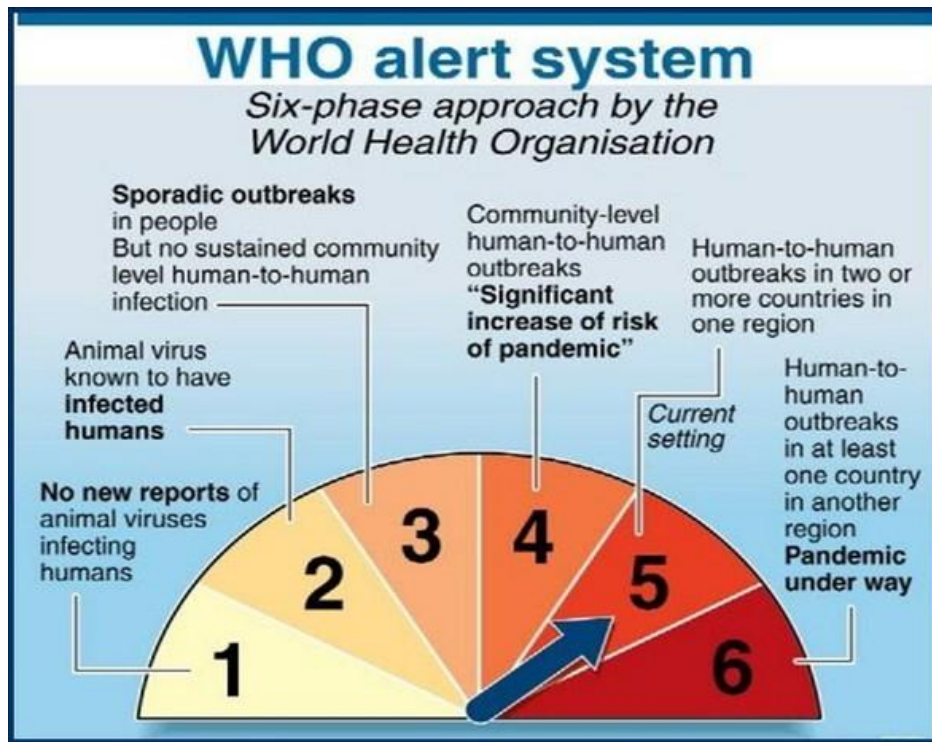
- 2003 “..when **a new influenza virus** appears against which the human population has no immunity, **resulting in several simultaneous epidemics worldwide with enormous numbers of deaths and illness**”.
- 2009 “..when **a new influenza virus** appears against which the human population has no immunity” *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

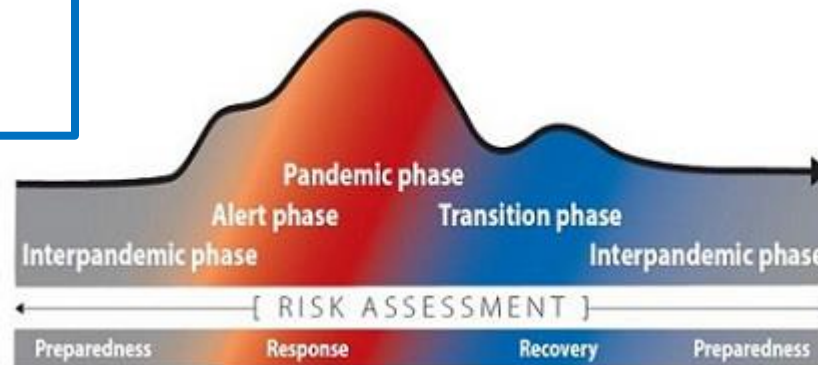
- **Phase 6**, the pandemic phase, is characterized by community level outbreaks in **at least one other country in a different WHO region** in addition to the criteria defined in **Phase 5** (*2 countries in the same WHO region, ndr*)

The six regions of the World Health Organisation



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?

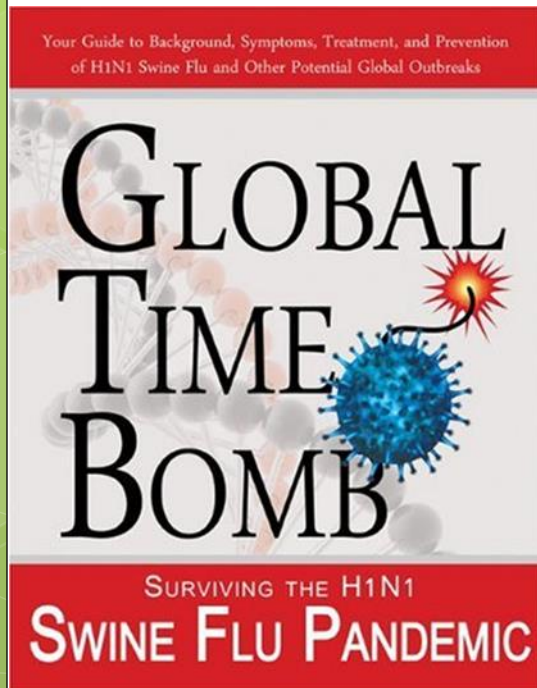
But....for the general public?

- Pandemic = catastrophe



Swine flu

- If it isn't a catastrophe it isn't a pandemic



As fear goes by...

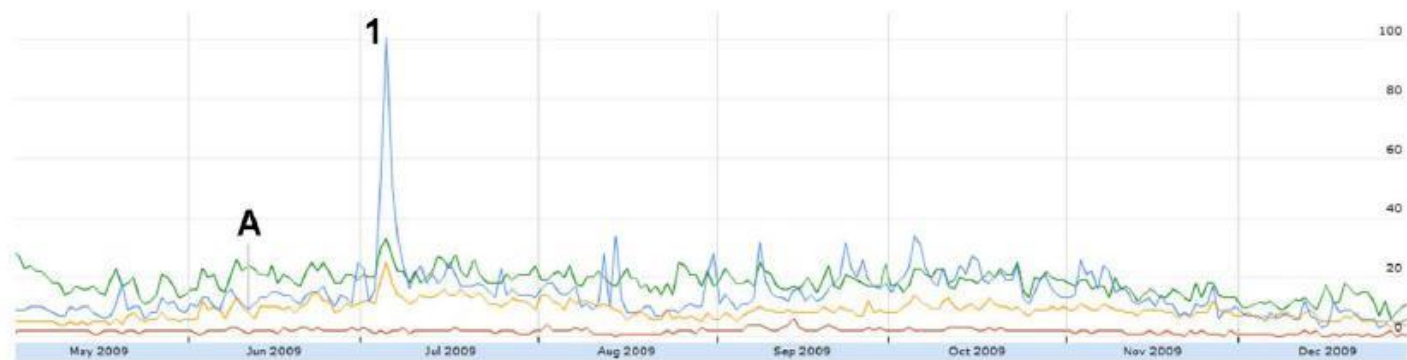
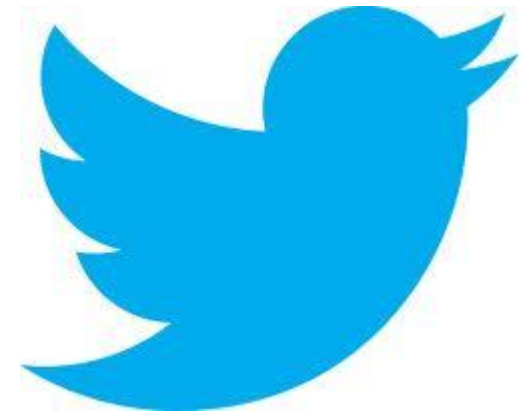
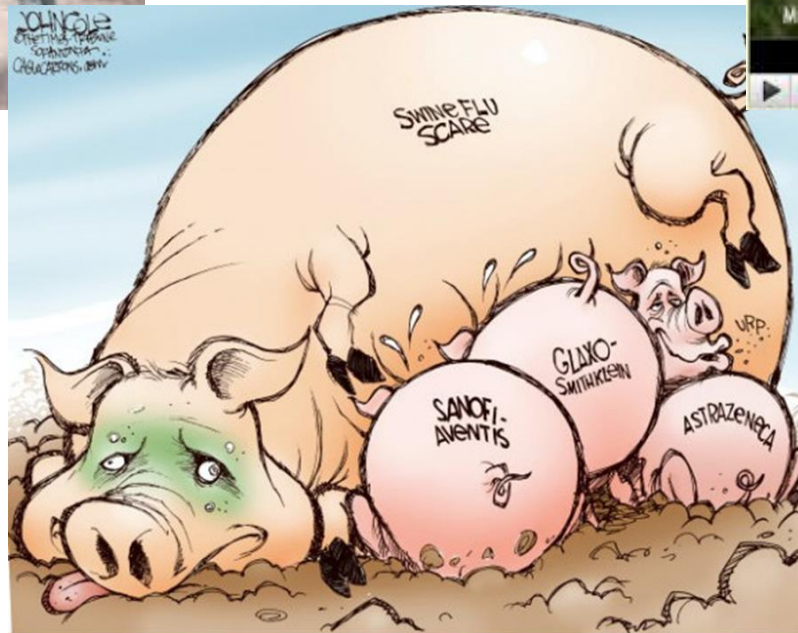


Figure 11. The relative proportion of tweets expressing concern from May 1 to December 31 2009. Blue = concern for others. Red = concern for self. Yellow = concerned emoticons. Green = general concern. A = June 11: WHO pandemic level 6 announcement. 1 = July 5: Harry Potter actor Rupert Grint has H1N1. 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



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

https://youtu.be/_gwUdmPI0bU

- CDC surprise



HALLOWEEN



+ ZOOM - ZOOM RESET

PHOTOS

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”

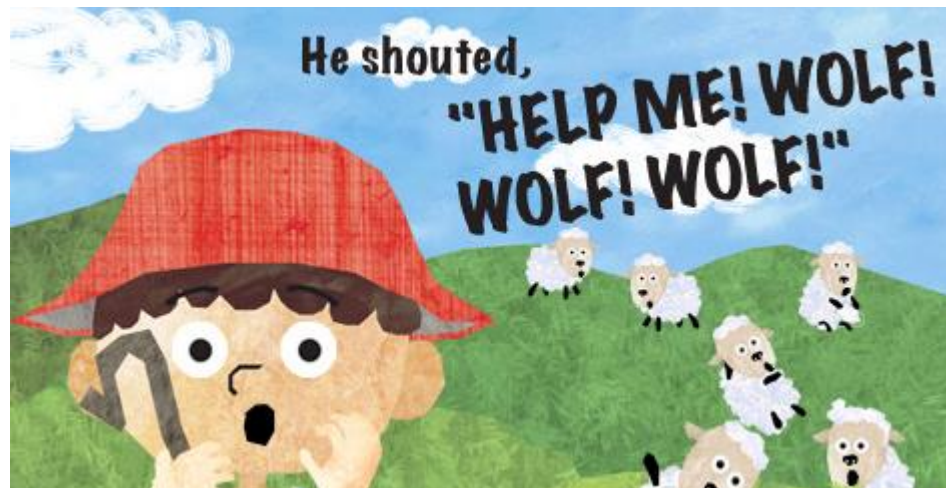
ECDC

http://ecdc.europa.eu/en/healthtopics/pandemic_preparedness/basic_facts/Pages/definition_of_pandemic.aspx

2009 A(H1N1) pandemic impact

- ↓ Trust in authorities
- ↓ perception of pandemic risk

Trust?
Years to earn, seconds to break.
PUNJABIGRAPHICS.COM



"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)



Top 5 Global Risks in Terms of Impact

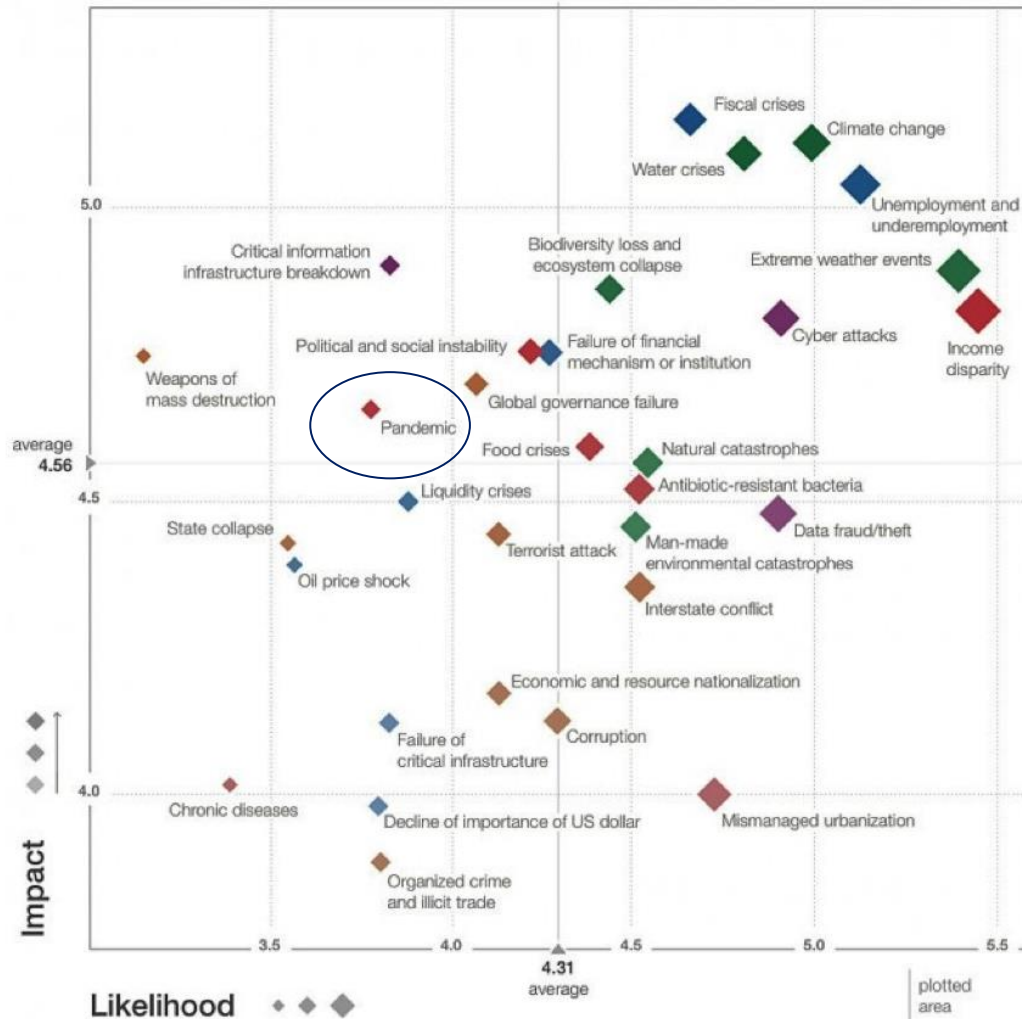
	2007	2008	2009	2010	2011	2012	2013	2014
1st	Asset price collapse	Asset price collapse	Asset price collapse	Asset price collapse	Fiscal crises	Major systemic financial failure	Major systemic financial failure	Fiscal crises
2nd	Retrenchment from globalization	Retrenchment from globalization (developed)	Retrenchment from globalization (developed)	Retrenchment from globalization (developed)	Climate change	Water supply crises	Water supply crises	Climate change
3rd	Interstate and civil wars	Slowing Chinese economy (<6%)	Oil and gas price spike	Oil price spikes	Geopolitical conflict	Food shortage crises	Chronic fiscal imbalances	Water crises
4th	Pandemics	Oil and gas price spike	Chronic disease	Chronic disease	Asset price collapse	Chronic fiscal imbalances	Diffusion of weapons of mass destruction	Unemployment and underemployment
5th	Oil price shock	Pandemics	Fiscal crises	Fiscal crises	Extreme energy price volatility	Extreme volatility in energy and agriculture prices	Failure of climate change adaptation	Critical information infrastructure breakdown

■ Economic
 ■ Environmental
 ■ Geopolitical
 ■ Societal
 ■ Technological

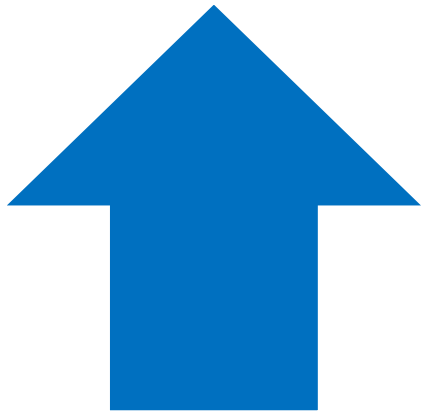
Source: *Global Risks* reports 2007-2014, World Economic Forum.

Note: Global risks may not be strictly comparable across years, as definitions and the set of global risks have been revised with new issues having emerged on the 10-year horizon. For example, cyber attacks, income disparity and unemployment entered the set of global risks in 2012. Some global risks were reclassified: water supply crises and income disparity were reclassified as environmental and societal risks, respectively, in 2014.

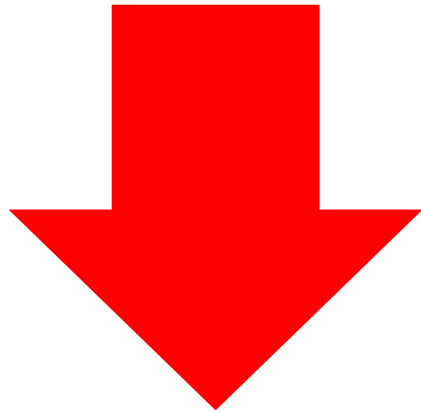
WEF Global Risks Perception Survey 2013-2014



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



Economic (and
enviromental)
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

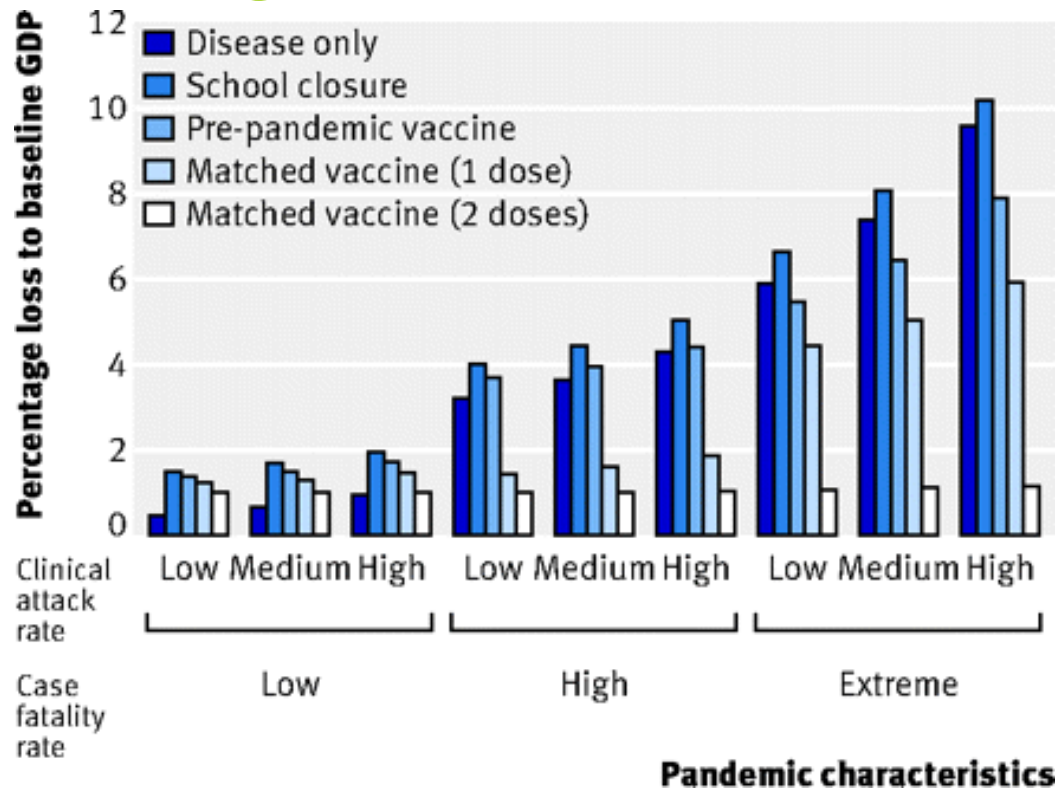
- urgent public health emergency
- unpredictable
- alarming for the public
- socially and economically disruptive
- strong political dimensions
- spread has behavioural component
- eminently newsworthy

(WHO 2005)

Big policy issues

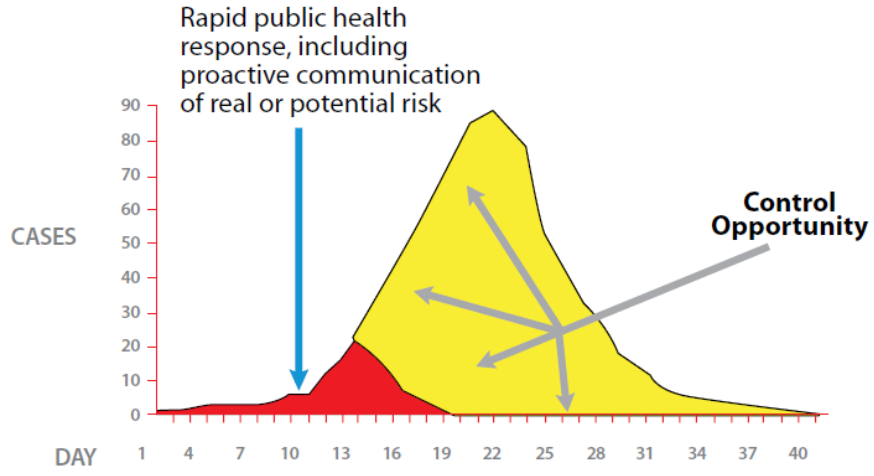
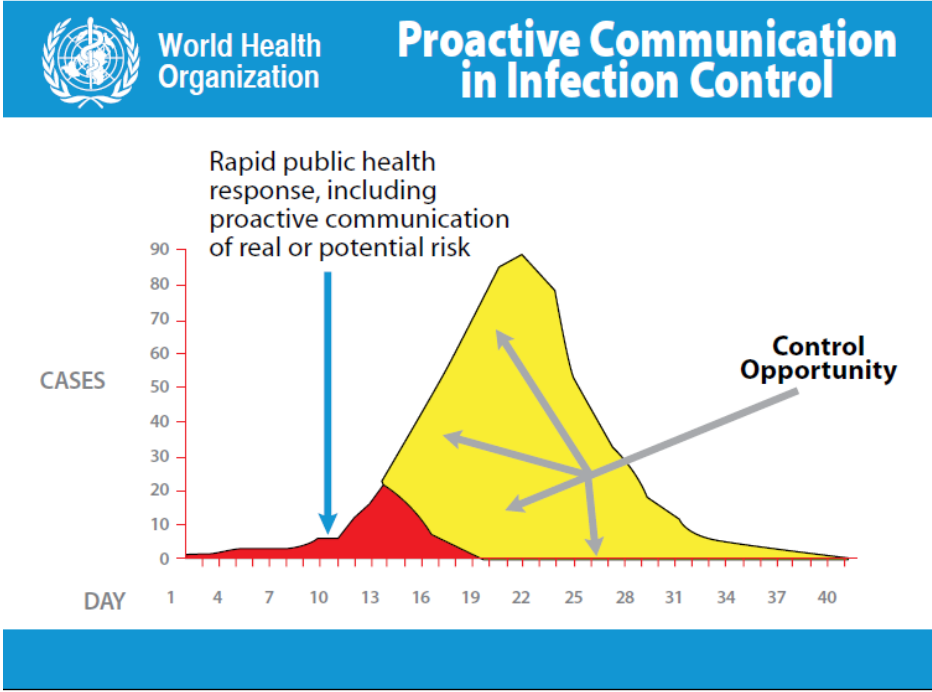
- Transparency
- Quarantine, school closure, trade and travel restrictions,...
- Decisions about vaccines and drugs supply and distribution (priorities?)
-

Strategies count



Room for intervention

FIGURE 1



Source: adapted from figure 2, page XII, World Health Report 2007

US Media (October 2014)

It's all about politics

Ebola becoming political issue



McFadden focusing heavily on Ebola

Story Image (1)

Print Font Size: - +



Jerry Holt

Posted: Tuesday, October 28, 2014 4:19 pm

Associated Press |

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

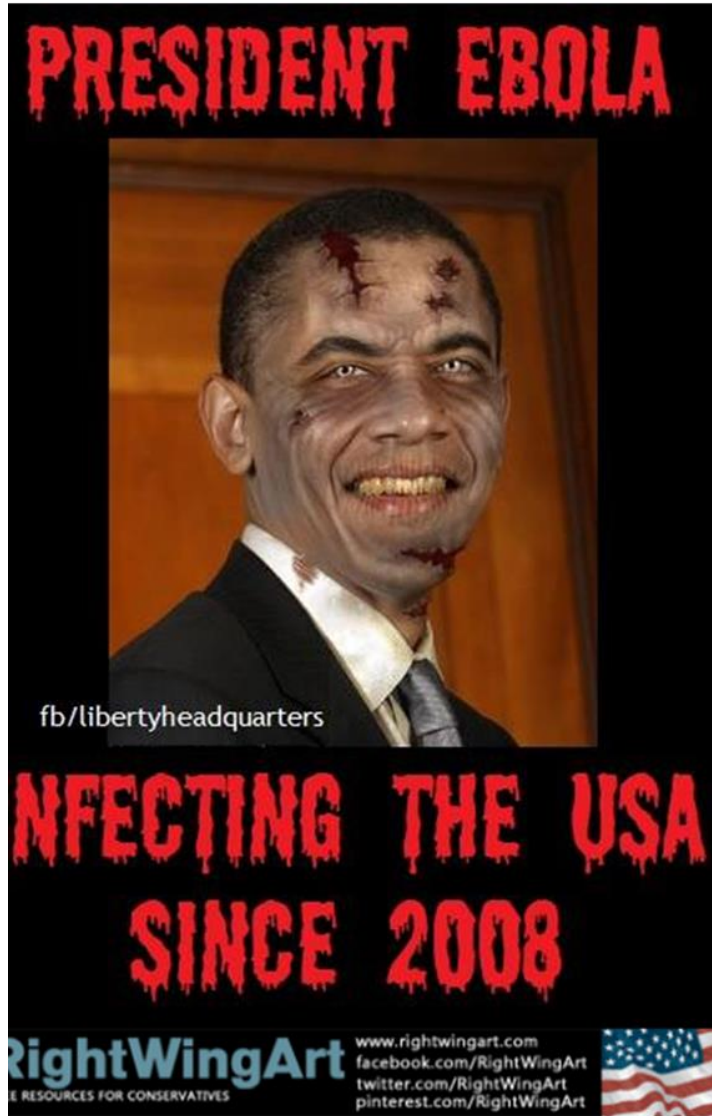
Republican Senate candidate Mike McFadden has repeatedly raised questions about the federal response and brought it up in debates with Democratic Sen. Al Franken. Meanwhile, as Gov. Mark Dayton wages his own re-election fight, he's taken several steps aimed at readiness. Dayton announced Monday a new 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

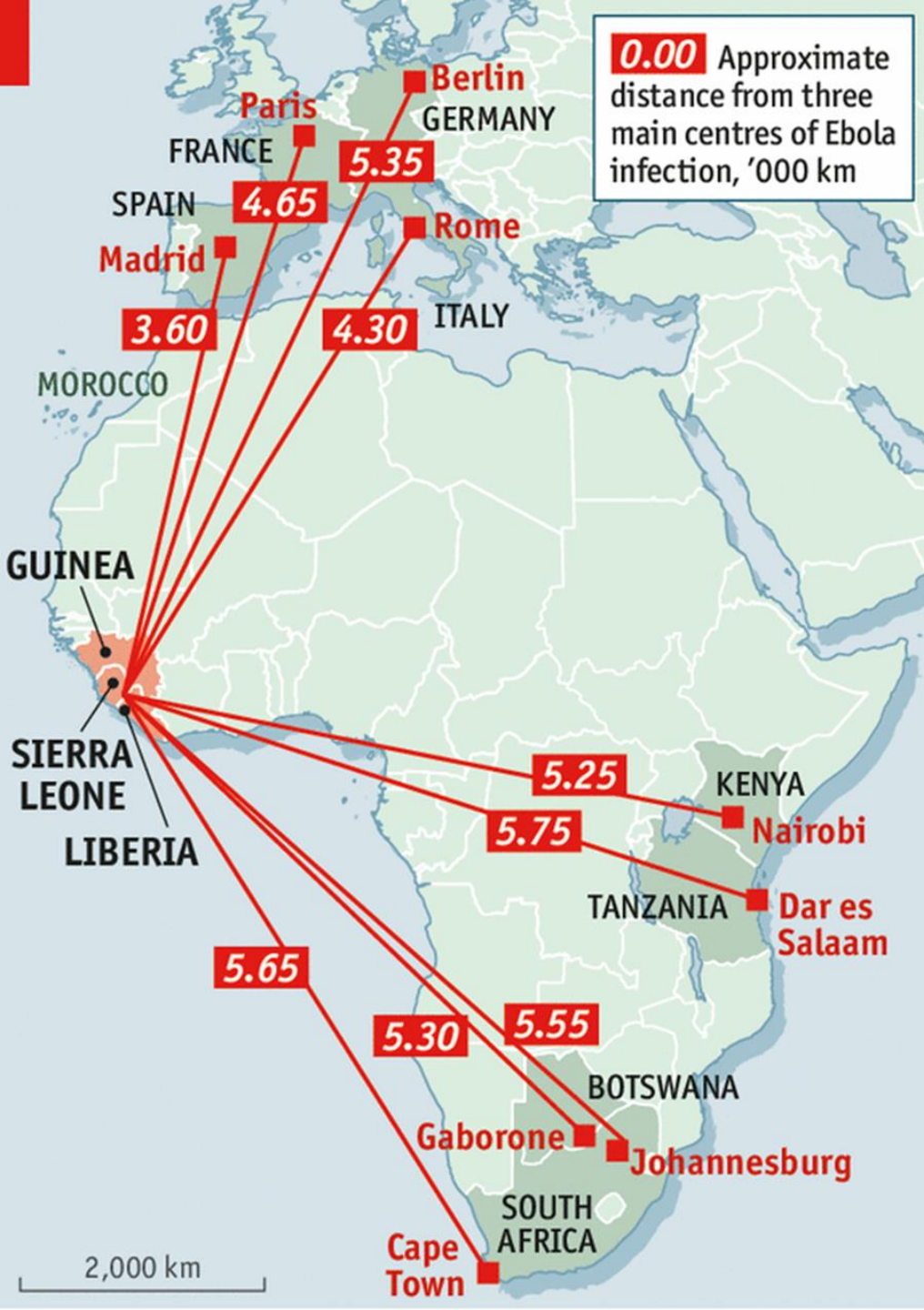
- ◉ Naming (swine flu, MERS,...)



Misinformation



Africa= Ebola?



The Ignorance Epidemic

(The Economist, 15 Nov 2014)

- 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

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A tourist rides on a camel's back at the Jomo Kenyatta public beach in Kenya's coastal city of Mombasa, March 24, 2013.

DAILY
Intelligencer / EBOLA

Kentucky Teacher Resigns Over Parents' Dumb Ebola Fears

By Margaret Hartmann [Follow @marghartmann](#)



Where the giraffes are, and the zebra. Photo: Credit field Shutterstock

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.

Discrimination

01 837-7812
CAMPUS
Camp Road
K 70083
8-7200
PLUS
 Blvd.
867
848
ER
St
40
18

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.



Stigma

 **CFR Communications**
@CFR_Comm  

.@Laurie_Garrett: I could see a horrible stigmatization unfolding against ppl in West Africa, including countries w/ no Ebola.
#CFRLive

 Reply  Retweeted  Favorite  Story  More

RETWEETS 5 FAVORITE 1 

9:44 PM - 1 Oct 2014

 Reply to @CFR_Comm @Laurie_Garrett

 **Krafty.Wurker** @KraftyWurker · 19h
@CFR_Comm @Laurie_Garrett Eating raw bush meat, and having sex with chimps ain't exactly a healthy lifestyle. #cfrlive #ebola #Obama



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.**”

John Barry. *The Great Influenza in Nature*, 2009

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
- ↓ socioeconomical 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

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

$$\frac{R=H+O}{X}$$

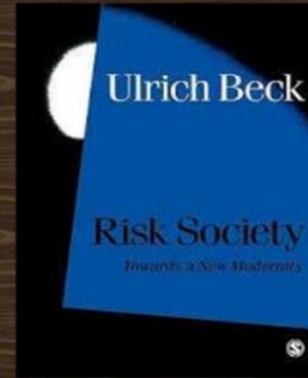
Risk and crisis communication (alternate models)

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



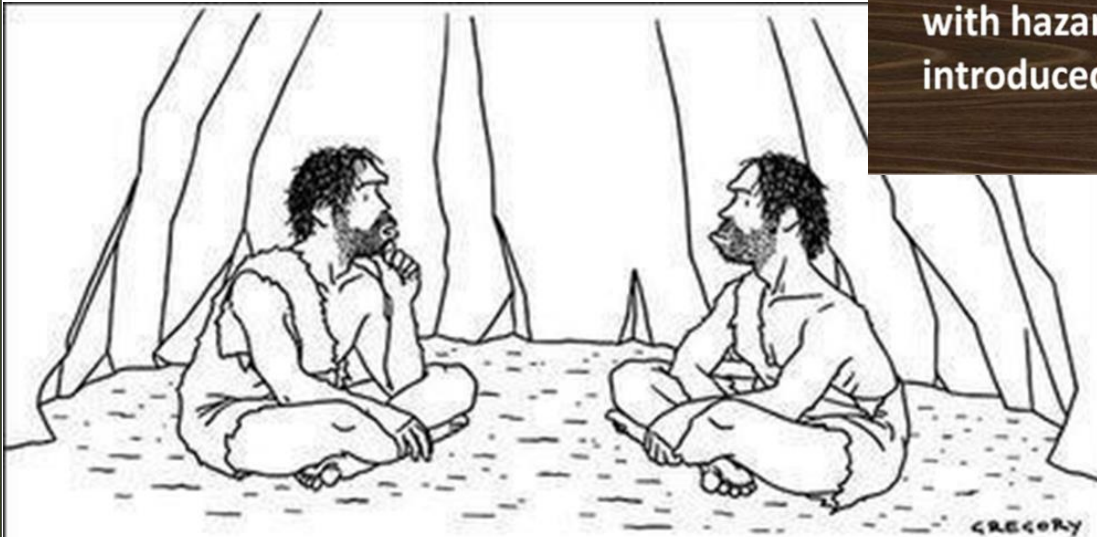
*Thomas Abraham
Risk and outbreak communication: lessons
from alternative paradigms.
Bulletin of the WHO 2009; 87: 604-607*

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

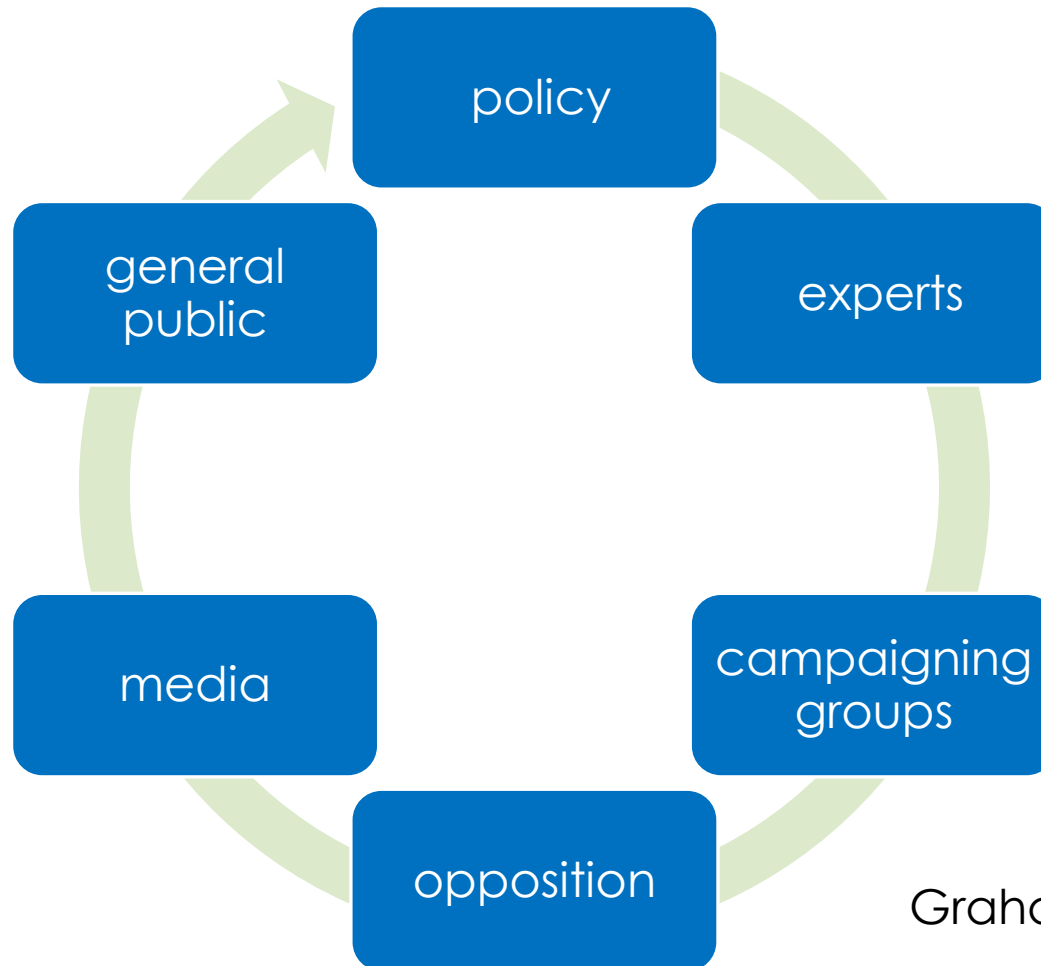
- **EPIDEMIC OF EXPLANATION:** society's attempts to find causes for the epidemic and to understand its scope and consequence
- **EPIDEMIC OF ACTION** (or of proposed action): competing control strategies

Blaming system

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

Mary Douglas

Bourdieu's arena



Graham Murdoch

New Framework Model for Risk communication in outbreaks

University of Haifa,
TELL ME project



Risk assessment



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 representatives 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.

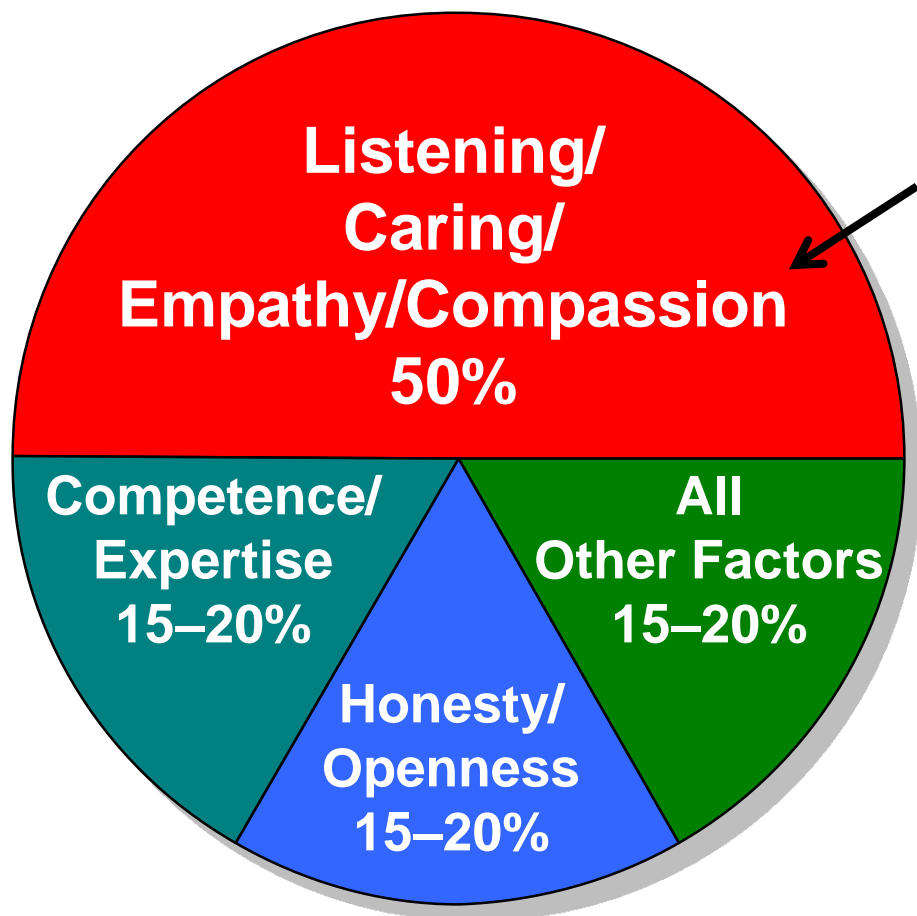
To establish a communication leadership, way before the appearance of a pandemic.



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



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

CDC communication shift

2006

○ "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"

2012

- **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.....

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!



Roberta Villa, Zadig
villa@zadig.it