DELIVERABLE 10.3

Risk Communication Tool Box V.1

Due: Month 36

Completed: Month 60

Deliverable Description

D10.3 provides the detailed description of the V.1 of the COMPARE Risk Communication Toolbox and its rationale. The toolbox is hosted at https://www.riskcommunication-compare.eu/ and is dynamically linked with the Compare Hub (https://www.compare-europe.eu/). The toolbox is structured around 8 main sections,

1) COMMUNICATION MODEL, which aims to provide the user with the main notions of the COMPARE Risk Communication Model and its high-level architecture
2) NARRATIVE MESSAGE MAP, which aims to drive the user from the general theory of message mapping, through the notions of epidemic imaginary and communication-action framework, to the creation of narrative message maps
3) PERIODIC TABLE OF EPIDEMIC NARRATIVE, which provides 175 links with tropes, symbols, plots and characters, relevant to epidemic narrative
4) MANUALS, which includes 4 main COMPARE manuals (a) Communication Theories and Models; (b) Health and Risk Communication; (c) Message Map Methodology; (d) Face to Face Communication
5) SPREADSHEET TOOLBOX, which includes 6 collections of spreadsheets, (a) Stakeholder analysis; (b) COMPARE Stakeholders; (c) Communication-Action Framework; (d) Message Mapping; (e) Narrative Messages; (f) Evaluation Tools
6) EDUCATIONAL MATERIAL, which includes educational videos, papers and booklets devoted to (a) Cultural Analysis for Health Risk Communication; (b) Credibility and Digital Trust; (c) Frames and Mental Strata; (d) Listening and Speaking; (e) Narrative Communication; (f) Risk Communication and Perception; (g) The Risk Semantic Field; (h) Vaccine and Magic Think
7) RESOURCES, which provides seminal papers and documents under three main headings, (a) COMPARE Risk Communication Methodology; (b) COMPARE Risk Communication references; (c) Selected Papers and Documents
8) COMPARE ECOSYSTEM, which provides 12 links with the overall COMPARE social media ecosystem

To these pages must be added a **registration page** for members and a **FORUM page**.

Annex 1 includes materials from the workshop on Vaccines, anti-vax, and health communication convened on 26-27 October 2018 by COMPARE Risk Communication WP10. The workshop, organised under the aegis of the Italian Medical Association and with the sponsorship of the Italian Ministry of Health, was held in Fiume Veneto (PN), Italy. The workshop generated two further events, including a course of medical continuous education organised by the Medical Association of Pordenone, with the participation of COMPARE WP10, attended by approx. 200 health professionals

D10.3 was delayed as a consequence of the delay of D10.2. However, the development of the Toolbox was not jeopardised and it was still aligned to the development of the whole COMPARE project.

Contents

1. COMPARE RISK COMMUNICATION TOOLBOX

The COMPARE RISK COMMUNICATION TOOLBOX supports development of communication messages about findings, outbreaks, and new opportunities discovered and/or generated through COMPARE, addressing different sub-populations, in diverse EIDS and geographical, cultural, and temporal contexts. The COMPARE RISK COMMUNICATION TOOLBOX V.1 is built on the COMPARE Risk Communication Model created in Task 10.2 and prepare the COMPARE RISK COMMUNICATION TOOLBOX Beta Version.

The COMPARE RISK COMMUNICATION TOOLBOX takes initial inspiration from the Framework Model and the Communication Kit developed by the TELL ME project and it is largely based on new media and Internet communication. The toolbox targets epidemic risk communication in generic EIDs with the "One Health" paradigm at the centre of the overall approach.

The toolbox must not be understood as a set of guidelines or as an overall guidance, rather it is a means to promote autonomous and original thinking. The very notion of narrative communication implies a significant degree of creativity and capacity for adaption. The COMPARE RISK COMMUNICATION TOOLBOX is a tool for thinking out of the box. It is based on rhizomatic structure, it expands through multiple connections, and it is not crossed by established modes of communication, or paths, or direction lines. Within the toolbox communication is not based on the structured, directional, transmission of pieces of information, because there are no established points or positions, directional lines, arrows, and nor stable networks to be crossed. The COMPARE RISK COMMUNICATION TOOLBOX is an ongoing labyrinth, which progresses through proliferation of new offshoots and clones

Global interconnectivity is the central feature to be considered to create a new risk communication model, aiming to address global phenomena like epidemics and pandemics from a one health perspective. Global interconnectivity goes beyond the Internet, including market interconnectivity, financialization of world economy, electronic currencies, people global mobility and migrations, interculturality, and so on. Likewise, the One Health model emphasises the strict interconnection between human and animal health, as well as environmental issues. A new risk communication focused on EIDs, and EEs must be, (1) interconnected; (2) decentralised and non-hierarchical; (3) distributed; (4) global, transcending specific territories, but also with a local reach; (5) real-time, synchronous, and, simultaneously, also timeless and consistent with the "perennial instant" of the Internet. The "rhizomatic model", tested by the TELL ME Project (TELL ME Consortium, 2013) and developed by the Health Risk Communication Centre at Haifa University (Gesser-Edelsburg A. , 2014), (Gesser-Edelsburg & Shir-Raz, 2016), is the best framework to include all the above.

"Rhizome" is one of those scientific names created *ex novo* from ancient Greek by modern scholars. The term originates in botany in the middle of the 19th century (Gartler, 2017). It indicates a vast category of herbaceous plants whose stem runs horizontally just under the ground. People mistake their visible, seasonal, foliage, for stems, and confuse their perennial stems with roots. Rhizomes are clones from a single genetic individual. Each clone keeps the same ability, so each rhizome can be detached, continuing being able to clone itself, giving rise to another identical colony. Ginger, iris, and rhubarb are well-known rhizomes. This brief botanical description makes sense because it is due to

their particular form of life that rhizomes were used as a metaphor by Swiss the psychoanalyst Carl Jung, who wrote in the introduction of his book of memories "*life has always seemed to me like a plant that lives on its rhizome. Its true life is invisible, hidden in the rhizome (...) What we see is blossom, which passes. The rhizome remains"* (Jung C. G., 1965, p. p.1). This is quote inspired French philosopher Gilles Deleuze and clinical psychoanalyst Félix Guattari to develop their theory, "*The world has become chaos, (…) A system of this kind could be called a rhizome. A rhizome as subterranean stem is absolutely different from roots and radicles. Bulbs and tubers are rhizomes (…) Even some animals are, in their pack form. Rats are rhizomes. Burrows are too, in all of their functions of shelter, supply, movement, evasion, and breakout. The rhizome itself assumes very diverse forms, (…) includes the best and the worst: potato and couch grass, or the weed"* (Deleuze & Guattari, 1987, pp. p.6-7).

Today, there is a considerable scholarly literature on the application of the rhizomatic theory and model to a variety of contexts and disciplines, including, e.g., literature and literary critics (Snyder, 1997); ethnicity and cultural studies (Guattari, 1995); cyberspace and the Internet (Broadhurst & Machon, 2012), (Aronowitz, Martinsons, Menser, & Routledge., 1996), (Turkle, 1995); communication studies (Johnson, 1997), (Jones, 1997); media studies (Poster, The Second Media Age, 1995); teaching and learning (Cole & Masny, 2014); neuroscience (Sampson, 2017) economy, (Araya & Peters, 2010), (Brande, 1996); business and management, (Yu J. E., 2006), (Yu J. E., 2013), (Rubenstein-Montano, et al., 2001); system modelling (Flood, 1987); surveillance studies (Bogard, 1996); political studies (Vayo, 2010), (Bey, 1991); war studies (Stone A. R., 1996).

We carried out a conceptual analysis of this vast literature. Results were confronted with established models of network analysis, risk communication and health communication, and with the experience developed by TELL ME. The main problem that we met - burdened with significant operational consequences - was the scarcity of real-life applications, except in the area of literary analysis (Honan E. , 2007), (Masny & Waterhouse, 2011) and teaching (Lourdes, Nery-Cura, & Guzman, 2018), (Murris, 2017). To be sure, we met several inspiring considerations about how applying the rhizomatic theory to different contexts and disciplinary areas, but very few real-life examples (if any, beyond the TELL ME project). Most papers devoted to methodological questions turned out being only theoretical papers (Mazzei & McCoy, 2010), (Masny, 2013), (Masny, 2016) or pieces of nice political activism. This is also due to an inherent "*impossibility and undesirability of prescribing a set of methods to be used in following Deleuze and Guattari's work"*, as Honan and Sellers write in one of the few papers providing concrete examples and applications (Honan & Sellers, 2006). Yet, it is difficult to avoid the impression that sometimes the "rhizomatic jargon" is used chiefly to make more "fashionable" on old, established, theory[1]. This is unfortunate because models are tools, they must be purposeful representations of reality; what matters with them is not their sophistication, rather whether they succeed in generating new operational abilities. We searched to avoid this flaw by anchoring our model to the materiality of stakeholder expectations; and by articulating the theoretical framework into more detailed sub-elements. Also, it should be stressed that selecting the rhizomatic model; we did not automatically espouse Deleuze and Guattari's ideological framework. Our approach to the rhizomatic model is pragmatic and anti-ideological.

[1] For instance, a recent application of rhizomatic theories to industrial management in North Korea (Yu, Moon and Kim 2008), which seems to be almost purely "cosmetic".

The main features of the rhizomatic model (Deleuze & Guattari, 1987) are,

(1) connection and heterogeneity;

(2) multiplicity;

(3) asignifying rupture;

(4) cartography and decalcomania.

The principle of connection notes that "*any point of a rhizome can be connected to anything other and must be*" ((7). The connections between nodes on a rhizome are also random in their relationship to each other which embodies the notion of heterogeneity "*A rhizome ceaselessly establishes connections between semiotic chains, organizations of power, and circumstances relative to the arts, sciences, and social struggles*" (p. 7). The principle of multiplicity notes that: "*it is only when the multiple is effectively treated as a substantive, 'multiplicity,' which it ceases to have any relation to the One as subject or object, natural or spiritual reality, image and world. Multiplicities are rhizomatic, and expose arborescent pseudomultiplicities for what they are*" (p. 8). When a rhizome is broken or ruptured, it can still function within its remaining structure or can create new lines of growth from the ruptured area. Finally, the principles of cartography and decalcomania argue that the rhizome exists as a map and not a tracing: "*A map has multiple entryways, as opposed to the tracing, which always comes back 'to the same.' The map has to do with performance, whereas the tracing always involves an alleged 'competence'* (p. 12–13). Rather than a unifying and guiding origin, rhizomatics decenter any privileging or hierarching of unity. This is mirrored by the COMPARE TOOLBOX, which is ultimately a tool for surfing in the Internet, exploiting the almost endless resources devoted to Health Risk Communication in Epidemics, without providing the user with any rigid tracing, but leavening him substantially free to create his own path, which can be changed and varied in any moment.

In such a sense the COMPARE Risk Communication TOOLBOX radically differs from another attempt that was created in the last couple of years to establish a rhizomatic website devoted to epidemics. This is the Rhizome site, "TOOLS & GUIDANCE TO HELP YOU DESIGN DATA-DRIVEN COMMUNICATION STRATEGIES THAT HELP VACCINATE EVERY CHILD" published by the Global Polio Eradication Initiative (GPEI), a public-private partnership led by national governments and spearheaded by the World Health Organization (WHO), Rotary International, the US Centers for Disease Control and Prevention (CDC), and the United Nations Children's Fund (UNICEF), whose goal is to eradicate polio worldwide. We do appreciate that the GPEI espoused the TELLME and the COMPARE risk communication models and took inspiration from their use of the rhizomatic theory. However, the site *Rhizome* is a conventional website where it is just possible to select materials within the site itself, in order to tailor his own member page.

Alternatively, we argue that a rhizomatic toolbox recognises that learning is a complex process of sense-making to which each user brings their own context and has their own needs. It overturns conventional notions of toolbox by positing that "the toolbox is (re)created each access to it"; that toolbox is not designed around content but is instead a process in which we navigate the Internet and learn with and from each other. In the rhizomatic toolbox there is little structure to guide users, they negotiate the toolbox, create and share ideas and contents, harness personal epidemic communication networks, make creative connections across traditional boundaries, determine their own goals.

2. Overall structure of the TOOLBOX

The toolbox is hosted at https://www.riskcommunication-compare.eu/ and is dynamically linked with the Compare Hub (https://www.compare-europe.eu/). The toolbox is structured around 8 main sections,

9) COMMUNICATION MODEL, which aims to provide the user with the main notions of the COMPARE Risk Communication Model and its high-level architecture
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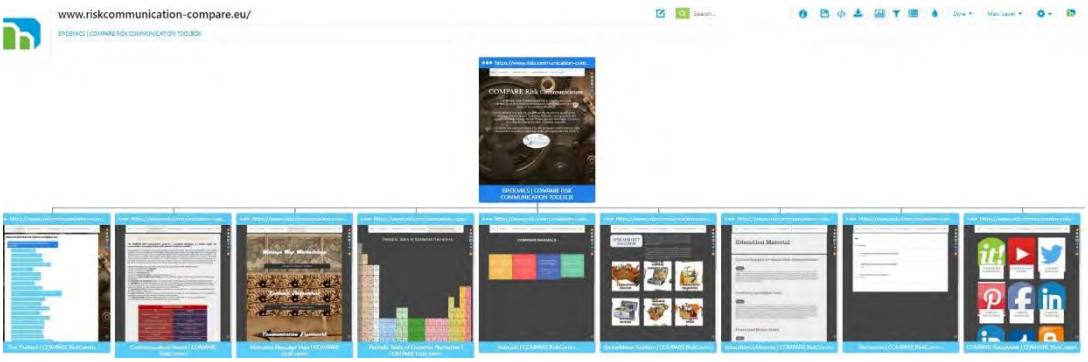
First level structure:



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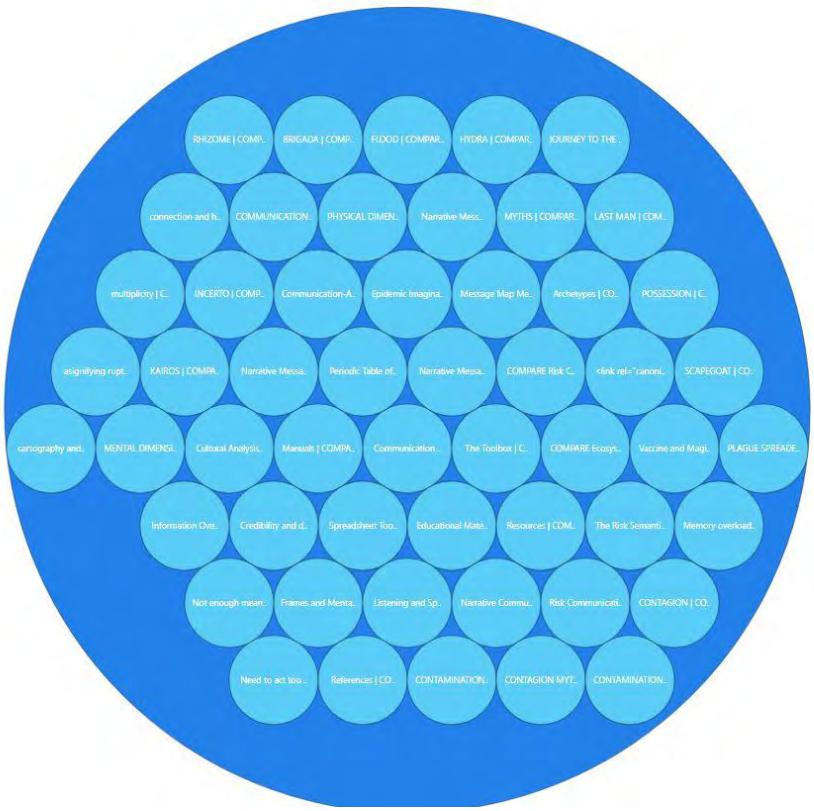
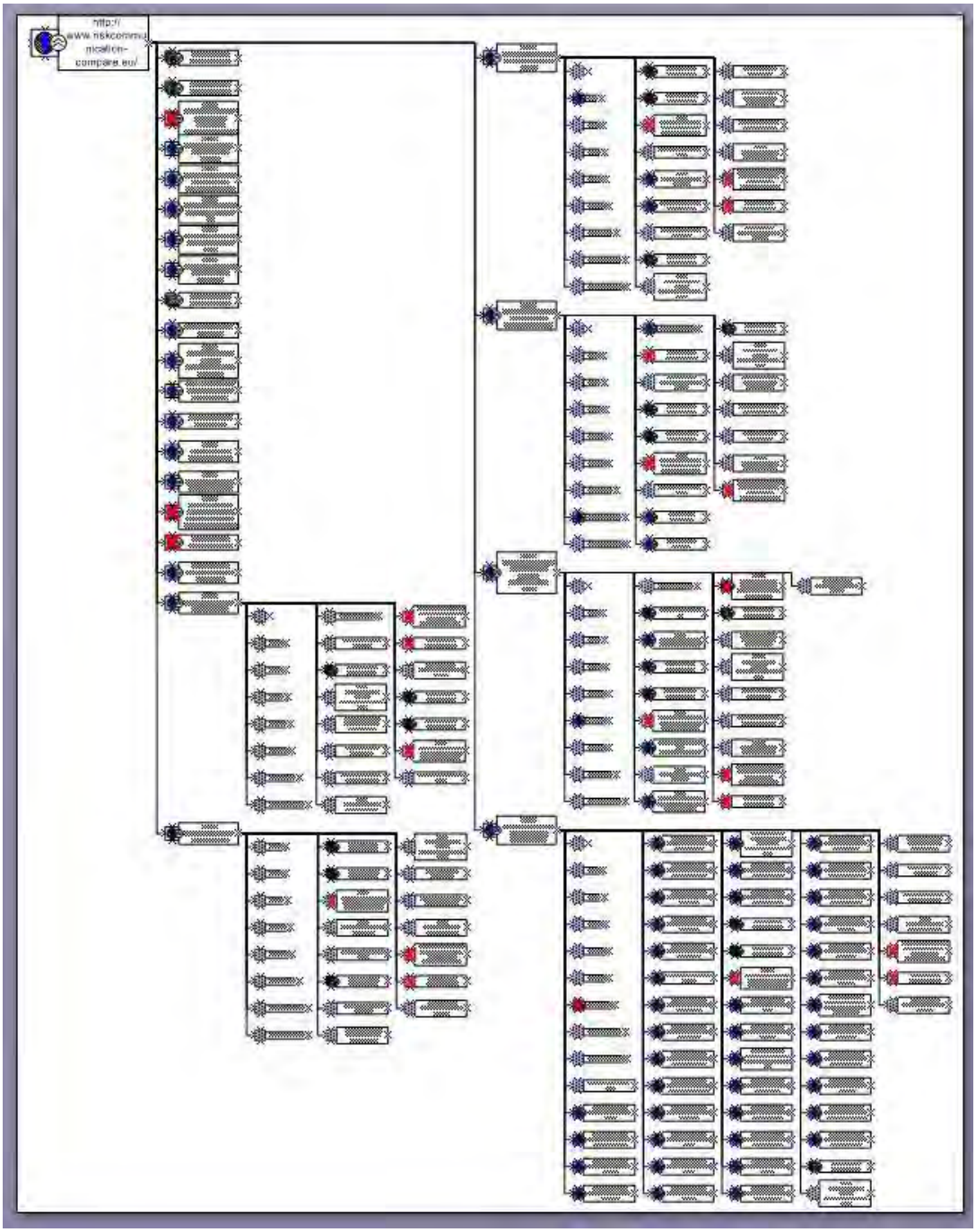


The **third level structure** of the site is the following,



EPIDEMICS | COMPARE RISK COMMUNICATION TOOLBOX

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The Toolbox | COMPARE RiskComm.
https://www.riskcommunication-compare.eu/the-toolbox
Communication Model | COMPARE RiskComm.
https://www.riskcommunication-compare.eu/compare-communication-model
Narrative Message Map | COMPARE RiskComm.
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Periodic Table of Epidemic Narratives | COMPARE RiskComm.
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Manuals | COMPARE RiskComm.
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Spreadsheet Toolbox | COMPARE RiskComm.
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Educational Material | COMPARE RiskComm.
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COMPARE Risk Communication Model | COMPARE RISK COMMUNICATION TOOLBOX
https://www.riskcommunication-compare.eu/online-trust
Message Map Methodology | COMPARE RiskComm.
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Epidemic Imaginaries | COMPARE RiskComm.
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Communication-Action Framework | COMPARE RiskComm.
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Cultural Analysis for health risk com | COMPARE RiskComm.
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Credibility and digital trust | COMPARE RiskComm.
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Frames and Mental Strata | COMPARE RiskComm.
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Listening and Speaking | COMPARE RiskComm.
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Risk Communication and RiskPerception | COMPARE RiskComm.
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The Risk Semantic Field | COMPARE RiskComm.

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Not enough meaning | COMPARE RiskComm.
https://www.riskcommunication-compare.eu/not-enough-meaning
Need to act too fast | COMPARE RiskComm.
https://www.riskcommunication-compare.eu/need-to-act-too-fast
References | COMPARE RiskComm.
https://www.riskcommunication-compare.eu/references
CONTAMINATION MYTHS | COMPARE RiskComm.
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CONTAGION MYTHS | COMPARE RiskComm.
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CONTAGION | COMPARE RiskComm.
https://www.riskcommunication-compare.eu/contagion
Memory overload | COMPARE RiskComm.
https://www.riskcommunication-compare.eu/memory-overload
PLAGUE SPREADER | COMPARE RiskComm.
https://www.riskcommunication-compare.eu/plague-spreader
SCAPEGOAT | COMPARE RiskComm.
https://www.riskcommunication-compare.eu/scapegoat
POSSESSION | COMPARE RiskComm.
https://www.riskcommunication-compare.eu/possession

LAST MAN | COMPARE RiskComm.
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JOURNEY TO THE AFTERLIFE | COMPARE RiskComm.
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FLOOD | COMPARE RiskComm.
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BRIGADA | COMPARE RiskComm.
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RHIZOME | COMPARE RiskComm.
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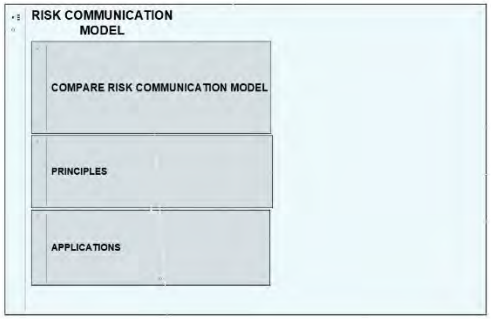
3. Toolbox High-Level Design

In their original writings regarding the rhizome and subsequent discussions of the nature of philosophy and knowledge, Deleuze and Guattari (1987) conceptualize the human brain as rhizomatic . They argue that knowledge and philosophy has remained entranced with trees. "*We're tired of trees. We should stop believing in trees, roots, and radicles. They've made us suffer too much. All of arborescent culture is founded on them, from biology to linguistics*" (p.15). At the culmination of *What is Philosophy?,* Deleuze and Guattari (1994) implicate their construction of the planes of immanence (philosophy), reference (science), and composition (art) by arguing that the brain is a junction of the three. At this junction, the planes interfere with each other, providing the means for new knowledge. This interference, much like the interconnectedness and limitless border of the rhizome, has the potential to open new avenues of becoming. This philosophical perspective has shaped our approach to the COMPARE Risk Communication Toolbox.

The Tool Box macroscopic system structure is the high level representation of the COMPARE Risk Communication Toolbox. It is the conceptual model that defines the structure, behaviour, and more views of the toolbox. The Toolbox V1.0 consists in the collection in progress of *tools*, together with *connectors* that describe the interaction between these tools.


RISK COMMUNICATION MODEL
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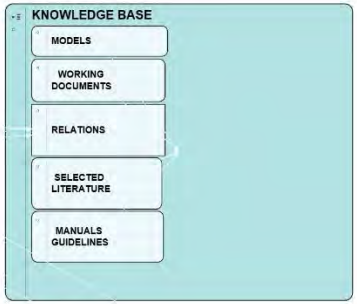
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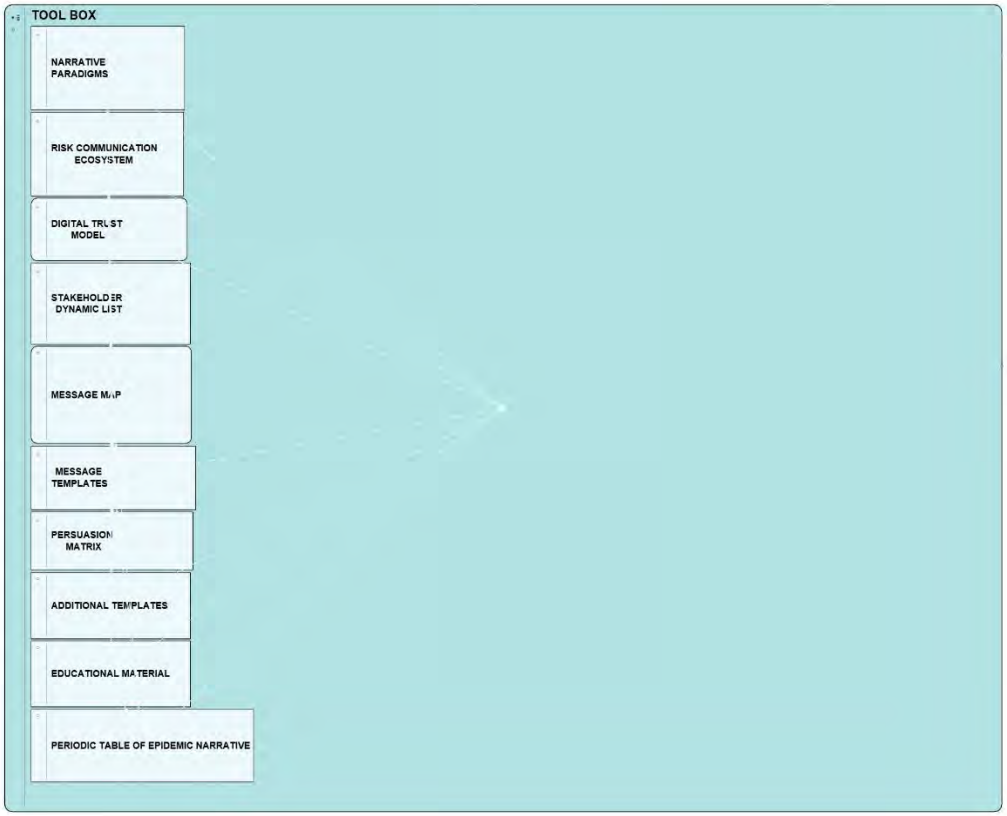
TOOL BOX
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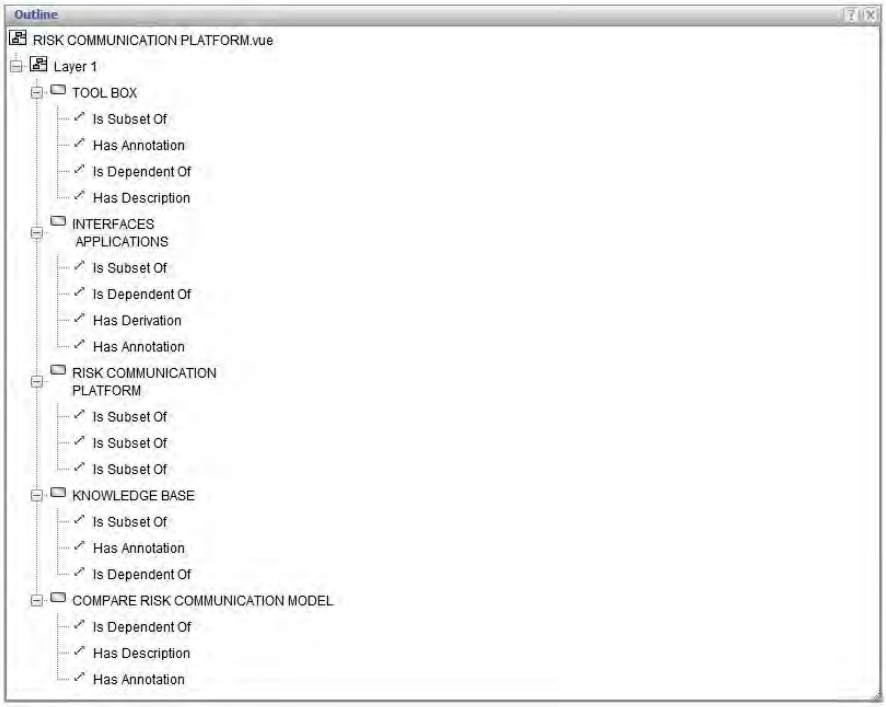
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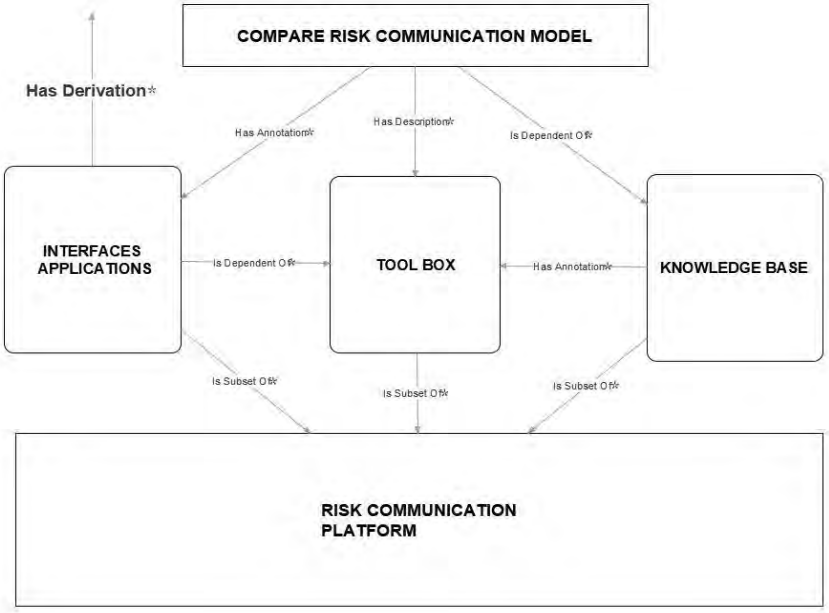
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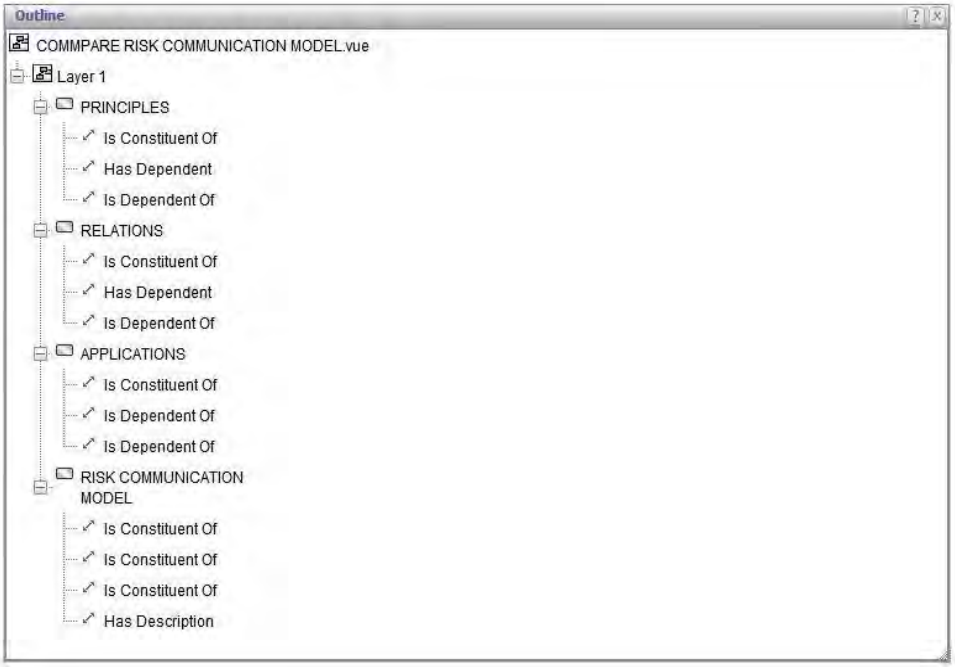
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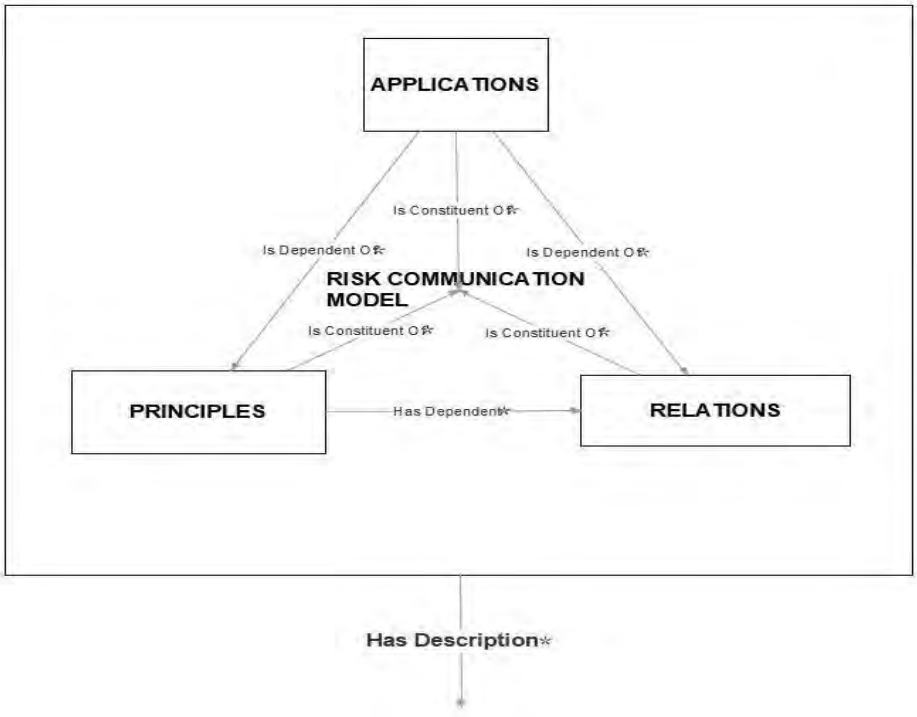
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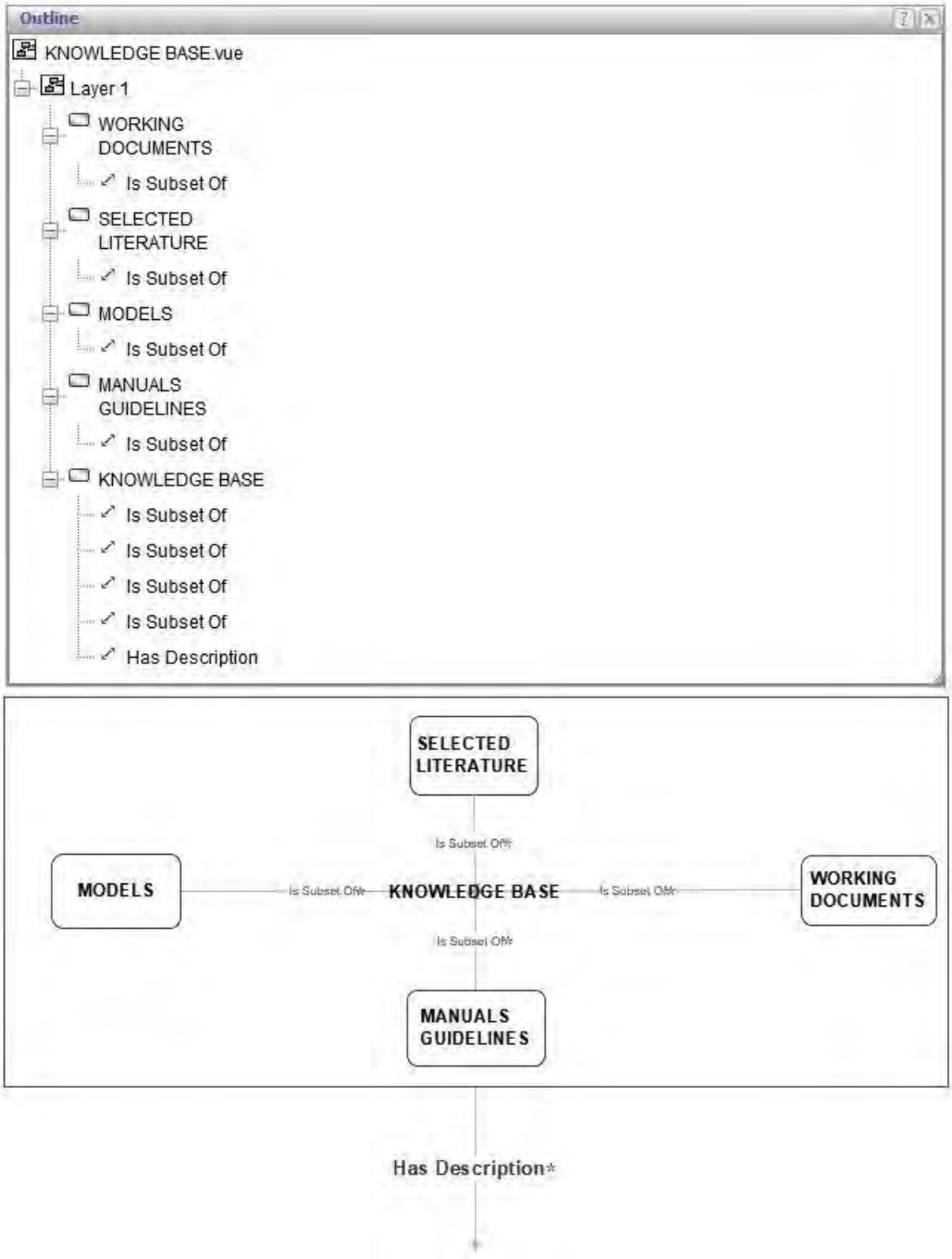
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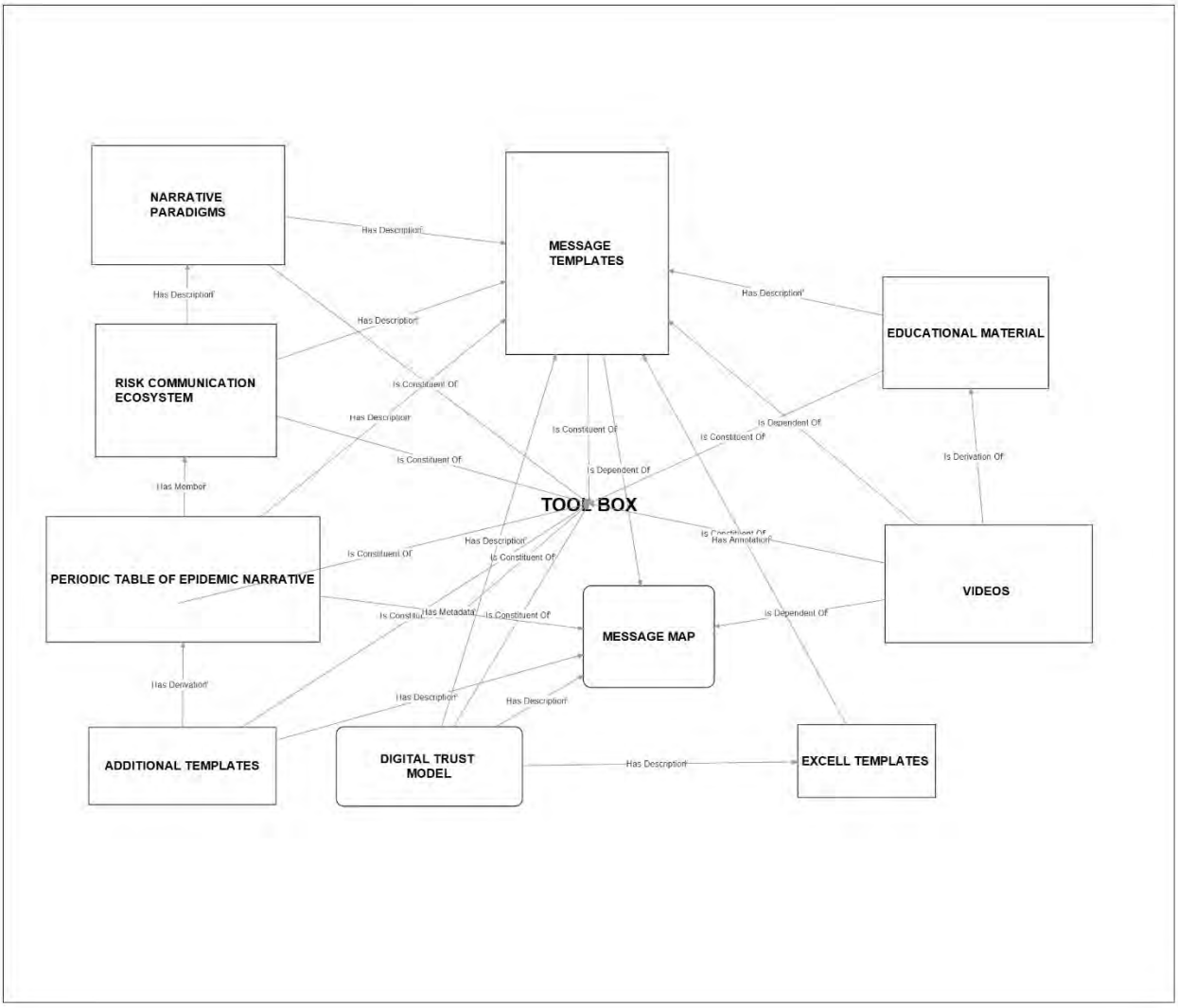
NARRATIVE PARADIGMS
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TOOL BOX
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VIDEOS
MESSAGE MAP
ADDITIONAL TEMPLATES
DIGITAL TRUST MODEL
EXCELL TEMPLATES
Has Description
Is Constituent Of
Is Dependent Of
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Has Member
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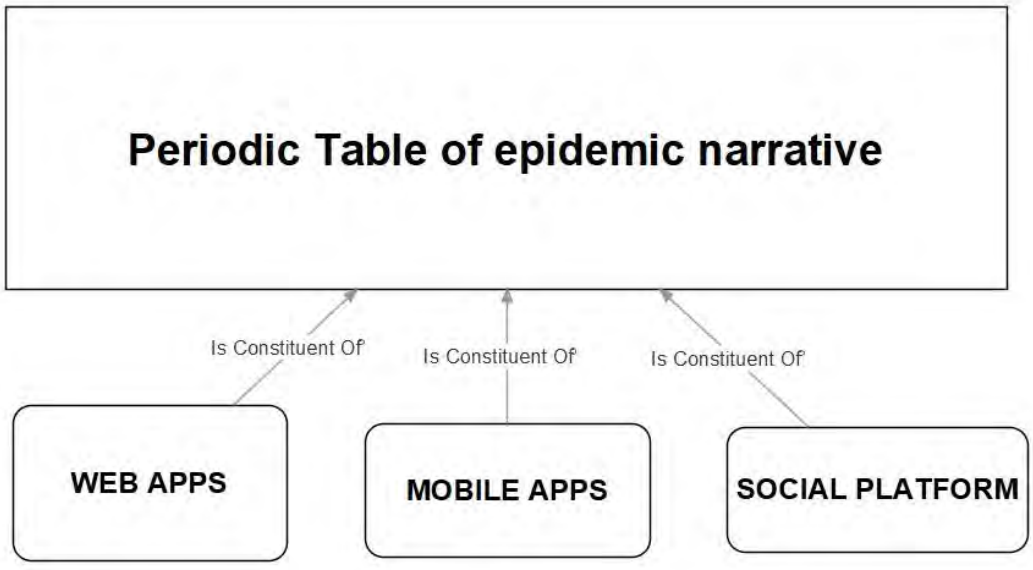
Periodic Table of epidemic narrative
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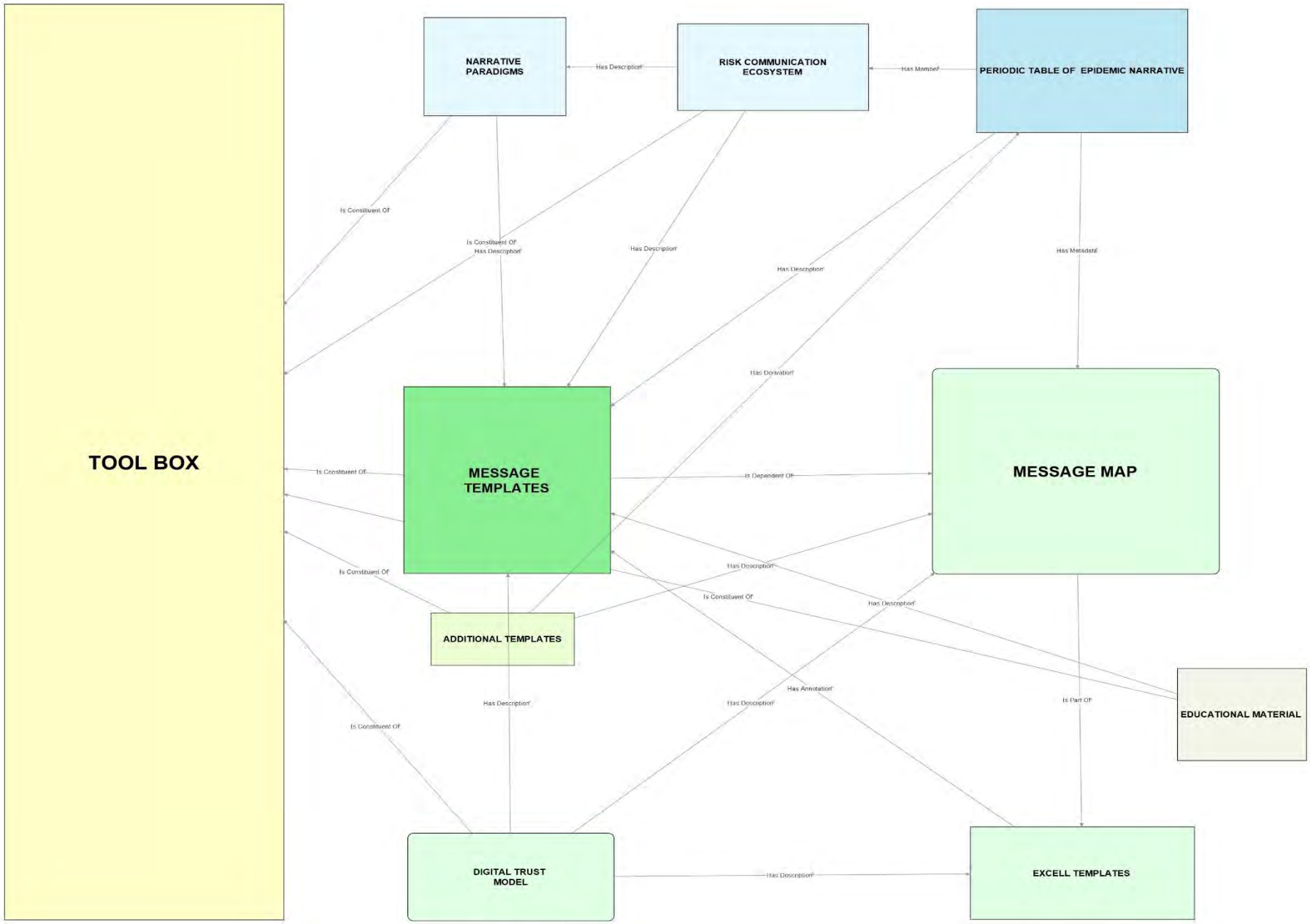
MOBILE APPS
SOCIAL PLATFORM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NARRATIVE PARADIGMS
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RISK COMMUNICATION ECOSYSTEM
Has Member
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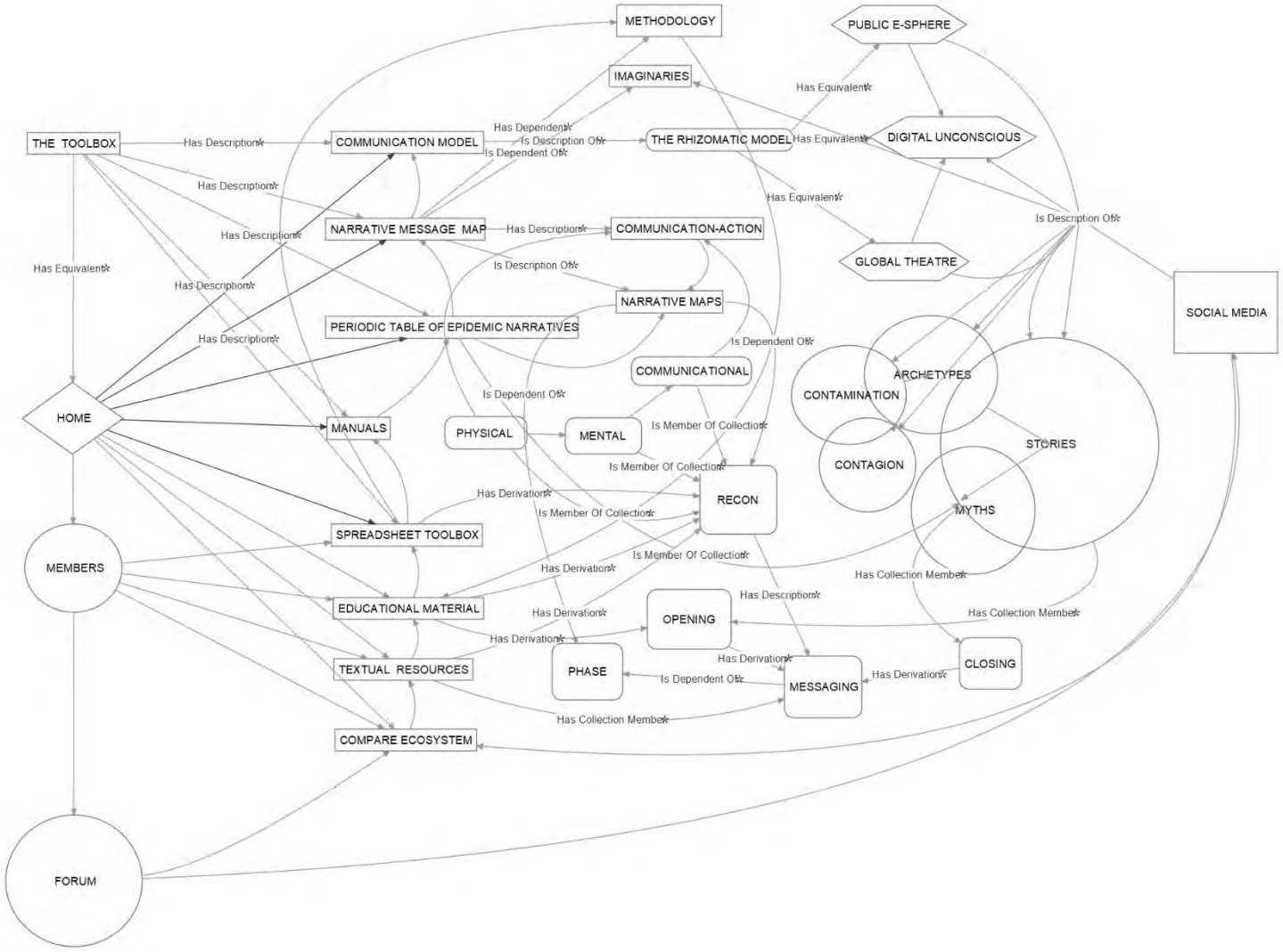
Is Part Of
EDUCATIONAL MATERIAL
Is Constituent Of
DIGITAL TRUST MODEL
Has Description
EXCELL TEMPLATES

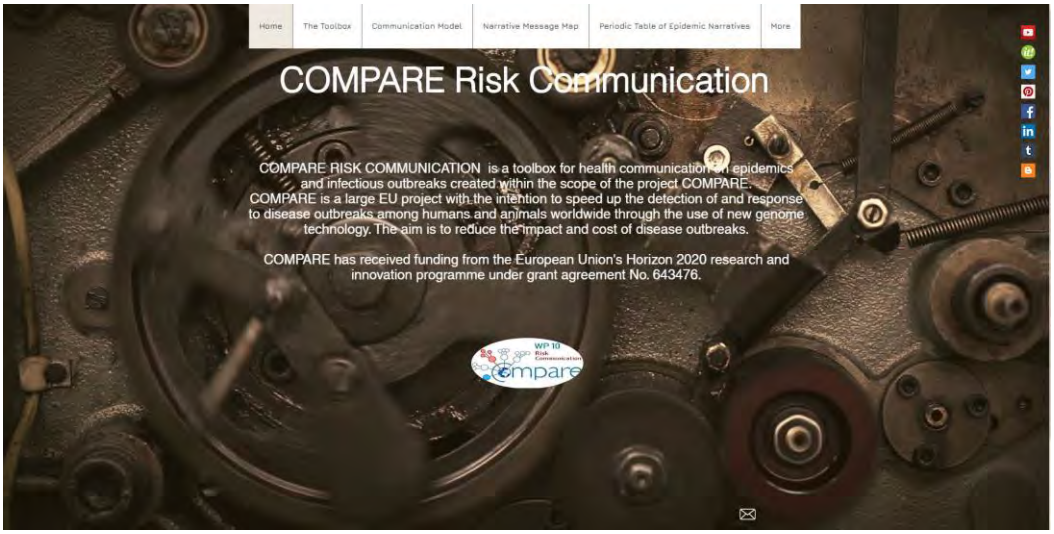
Rhizomatic Structure

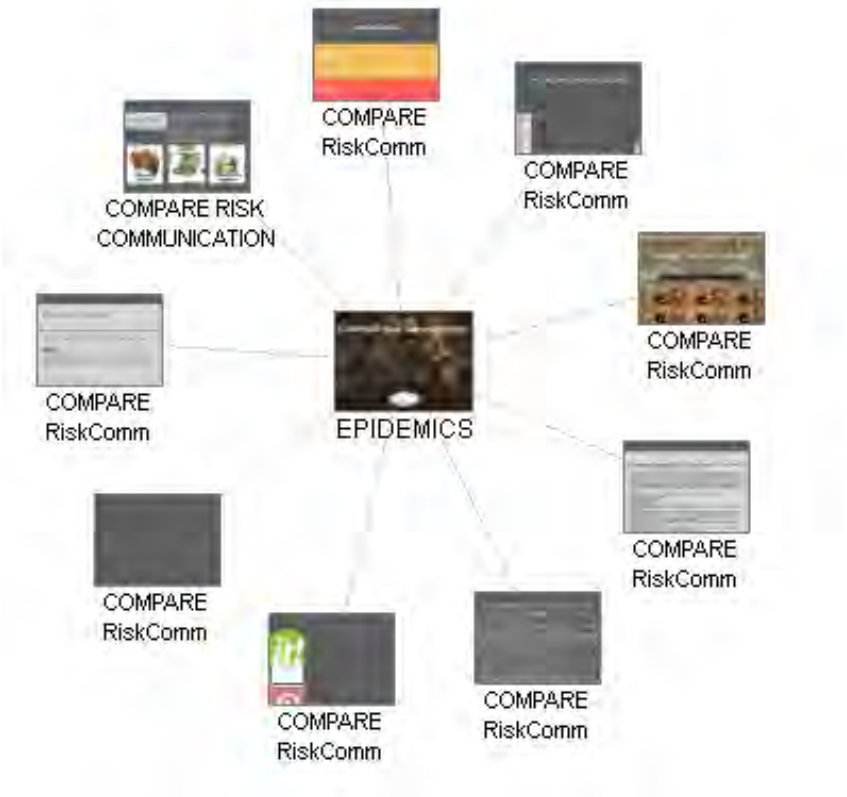
In the Toolbox rhizomatic structure each node is an entrance in the rhizome, say, it is not only connected with the edges, but it must be conceived as a window on the whole Internet, a gate which connects the rhizome with the wider online world.



4. COMPARE TOOLBOX ARCHITECTURE

The COMPARE TOOLBOX does not present the user with a predetermined path which inherently limits the nature and number of decisions. We offer the user a few initial choices according to his needs through e very simple and intuitive table of contents at the top of the web page; moreover, we have a page devoted to the TOOLBOX structure, which illustrates both the rhizomatic theoretical approach (through various subpages) and the overall architecture of the TOOLBOX, offering the possibility to access to main pages too.



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The COMPARE Risk Communication Tool Box
The COMPARE RISK COMMUNICATION TOOLBOX supports development of communication messages about findings, outbreaks, and new opportunities discovered and/or generated through COMPARE, addressing different sub-populations, in diverse EIDS and geographical, cultural, and temporal contexts.
The COMPARE RISK COMMUNICATION TOOLBOX takes initial inspiration from the Framework Model and the Communication Kit developed by the TELL ME project and it is largely based on new media and Internet communication. The toolbox targets epidemic risk communication in generic EIDs with the "One Health" paradigm at the centre of the overall approach.
The toolbox must not be understood as a set of guidelines or as an overall guidance, rather it is a means to promote autonomous and original thinking. The very notion of narrative communication implies a significant degree of creativity and capacity for adaption. The COMPARE RISK COMMUNICATION TOOLBOX is a tool for thinking out of the box. It is based on rhizomatic structure, it expands through multiple connections, and it is not crossed by established modes of communication, or paths, or direction lines. Within the toolbox communication is not based on the structured, directional, transmission of pieces of information, because there are no established points or positions, directional lines, arrows, and nor stable networks to be crossed. The COMPARE RISK COMMUNICATION TOOLBOX is an ongoing labyrinth, which progresses through proliferation of new offshoots and clones
The toolbox is hosted at https://www.riskcommunication-compare.eu/ and is dynamically linked with the Compare Hub (https://www.compare-europe.eu/). The toolbox is structured around 8 main sections,
1. COMMUNICATION MODEL, which aims to provide the user with the main notions of the COMPARE Risk Communication Model and its high-level architecture
2. NARRATIVE MESSAGE MAP, which aims to drive the user from the general theory of message mapping, through the notions of epidemic imaginary and communication-action framework, to the creation of narrative message maps
3. PERIODIC TABLE OF EPIDEMIC NARRATIVE, which provides 118 links with tropes, symbols, plots and characters, relevant to epidemic narrative
4. MANUALS, which includes 4 main COMPARE manuals (a) Communication Theories and Models; (b) Health and Risk Communication; (c) Message Map Methodology; (d) Face to Face Communication
5. SPREADSHEET TOOLBOX, which includes 6 collections of spreadsheets, (a) Stakeholder analysis; (b) COMPARE Stakeholders; (c) Communication-Action Framework; (d) Message Mapping; (e) Narrative Messages; (f) Evaluation Tools
6. EDUCATIONAL MATERIAL, which includes educational videos, papers and booklets devoted to (a) Cultural Analysis for Health Risk Communication; (b) Credibility and Digital Trust; (c) Frames and Mental Strata; (d) Listening and Speaking; (e) Narrative Communication; (f) Risk Communication and Perception; (g) The Risk Semantic Field; (h) Vaccine and Magic Thinking
7. RESOURCES, which provides seminal papers and documents under three main headings, (a) COMPARE Risk Communication Methodology; (b) COMPARE Risk Communication references; (c) Selected Papers and Documents
8. COMPARE ECOSYSTEM, which provides 12 links with the overall COMPARE social media ecosystem
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Message Map methodology, Epidemic imaginary, Communication-Action Framework, Narrative Templates
PERIODIC TABLE OF EPIDEMIC NARRATIVE
Symbols, tropes, characters, plots in epidemic narrative
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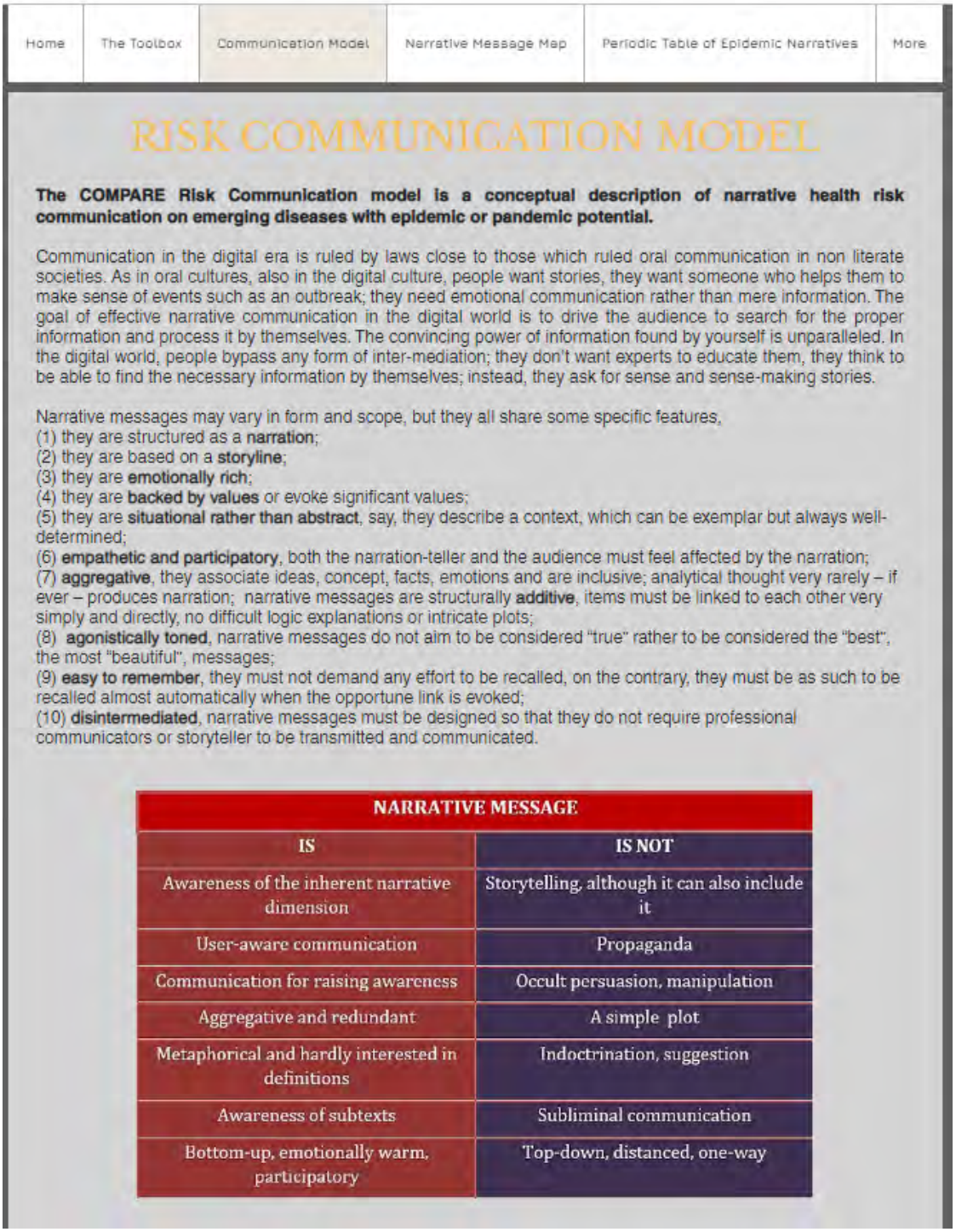
Theories and Models, Health and Risk Communication, Message Map Methodology, F2F Communication
SPREADSHEET TOOLBOX
Stakeholders, Communication, Messages, Evaluation
EDUCATIONAL MATERIAL
Cultural analysis, Credibility and Trust, Frames and Mental Strata, Listening and Speaking, Narrative Communication, Risk Communication, Risk Semantic Field, Vaccine and Magic Thinking
RESOURCES
Risk Communication Methodology & References, Selected Papers and Documents
COMPARE ECOSYSTEM
COMPARE Social Media



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RISK COMMUNICATION MODEL

The COMPARE Risk Communication model is a conceptual description of narrative health risk communication on emerging diseases with epidemic or pandemic potential.

Communication in the digital era is ruled by laws close to those which ruled oral communication in non literate societies. As in oral cultures, also in the digital culture, people want stories, they want someone who helps them to make sense of events such as an outbreak; they need emotional communication rather than mere information. The goal of effective narrative communication in the digital world is to drive the audience to search for the proper information and process it by themselves. The convincing power of information found by yourself is unparalleled. In the digital world, people bypass any form of inter-mediation; they don't want experts to educate them, they think to be able to find the necessary information by themselves; instead, they ask for sense and sense-making stories.

Narrative messages may vary in form and scope, but they all share some specific features,
(1) they are structured as a **narration**;
(2) they are based on a **storyline**;
(3) they are **emotionally rich**;
(4) they are **backed by values** or evoke significant values;
(5) they are **situational rather than abstract**, say, they describe a context, which can be exemplar but always well-determined;
(6) **empathetic and participatory**, both the narration-teller and the audience must feel affected by the narration;
(7) **aggregative**, they associate ideas, concept, facts, emotions and are inclusive; analytical thought very rarely – if ever – produces narration; narrative messages are structurally **additive**, items must be linked to each other very simply and directly, no difficult logic explanations or intricate plots;
(8) **agonistically toned**, narrative messages do not aim to be considered "true" rather to be considered the "best", the most "beautiful", messages;
(9) **easy to remember**, they must not demand any effort to be recalled, on the contrary, they must be as such to be recalled almost automatically when the opportune link is evoked;
(10) **disintermediated**, narrative messages must be designed so that they do not require professional communicators or storyteller to be transmitted and communicated.

NARRATIVE MESSAGE	
IS	**IS NOT**
Awareness of the inherent narrative dimension	Storytelling, although it can also include it
User-aware communication	Propaganda
Communication for raising awareness	Occult persuasion, manipulation
Aggregative and redundant	A simple plot
Metaphorical and hardly interested in definitions	Indoctrination, suggestion
Awareness of subtexts	Subliminal communication
Bottom-up, emotionally warm, participatory	Top-down, distanced, one-way

The COMPARE Risk Communication Model is chiefly for establishing new connections (both mental and operational) in all actors involved, rather than for transferring existent information from "knowledgeable" experts to the "uninformed" public. It is scalable, easy to use, it does not require major efforts and it is cost-effective.

The COMPARE Risk Communication model conjugates the focus on EIDs and emerging epidemics, with a rhizomatic approach, one of the most advanced approaches to today complexity. The rhizomatic approach - first advocated by Gilles Deleuze, a French philosopher, and Félix Guattari, a French psychoanalyst - was originally tested in the EC funded project TELL ME and was further developed by the Health and Risk Communication Centre at Haifa University. We will detail the three main components of this model, (1) the notion of Digital Public Sphere; (2) the theory of the Digital Unconscious; (3) the metaphor of the Global Theatre. These three, completing, perspectives share the critical feature to be rooted in the tension, integral to the digital society, between presence and reference, appearance and representation. The Internet is a stage and the digital public sphere is the stage of the world; so, the digital citizen has been captured within a play into the play. The real world and the virtual world have become like two mirrors facing each other, a global mise-en-abyme. The worldwide web is at once a virtual community (Habermas, 1991), a space of coexistence (Sloterdijk, 2016), the holographic projection of individual and collective archetypes ((Brock Schafer, 2016), and a global stage (Tinnell, 2011) where everyone can fictionalize her life. Deep biological reasons contribute to this phenomenon, as shown by the discovery of a class of neurons called "mirror neurons" activated both when individuals act and when they observe the same action performed by other individuals. Human beings are "theatrical" (Burke K. , 1963/1964) in their inner neurological constitution. This explains why for many, today, virtual reality has become the most real reality.

Through these three perspectives, we provide COMPARE Health Risk Communication with proper theoretical instruments to apply the rhizomatic theory to narrative health risk communication.

Go to the pocket manual (slides)

The Rhizomatic Model

Global interconnectivity is the central feature to be considered to create a new risk communication model, aiming to address global phenomena like epidemics and pandemics from a one health perspective. Global interconnectivity goes beyond the Internet, including market interconnectivity, financialization of world economy, electronic currencies, people global mobility and migrations, interculturality, and so on. Likewise, the One Health model emphasises the strict interconnection between human and animal health, as well as environmental issues. A new risk communication focused on EIDs, and EEs must be, (1) interconnected; (2) decentralised and non-hierarchical; (3) distributed; (4) global, transcending specific territories, but also with a local reach; (5) real-time, synchronous, and, simultaneously, also timeless and consistent with the "perennial instant" of the Internet. The "rhizomatic model", issued by the TELL ME Project (TELL ME Consortium, 2013) and developed by the Health Risk Communication Centre at Haifa University (Gesser-Edelsburg A. , 2014), (Gesser-Edelsburg & Shir-Raz, 2016), is the best framework to include all the above.

"Rhizome" is one of those scientific names created ex novo from ancient Greek by modern scholars. The term originates in botany in the middle of the 19th century (Gantlet, 2017). It indicates a vast category of herbaceous plants whose stem runs horizontally just under the ground. People mistake their visible, seasonal, foliage, for stems, and confuse their perennial stems with roots. Rhizomes are clones from a single genetic individual. Each clone keeps the same ability, so each rhizome can be detached, continuing being able to clone itself, giving rise to another identical colony. Ginger, iris, and rhubarb are well-known rhizomes. This brief botanical description makes sense because it is due to their particular form of life that rhizomes were used as a metaphor by Swiss the psychoanalyst Carl Jung, who wrote in the introduction of his book of memories 'life has always seemed to me like a plant that lives on its rhizome. Its true life is invisible, hidden in the rhizome (...) What we see is blossom, which passes. The rhizome remains" (Jung C. G., 1965, p. p.1). This is quote inspired French philosopher Gilles Deleuze and clinical psychoanalyst Félix Guattari to develop their theory, "The world has become chaos, (...) A system of this kind could be called a rhizome. A rhizome as subterranean stem is absolutely different from roots and radicles. Bulbs and tubers are rhizomes (...) Even some animals are, in their pack form. Rats are rhizomes. Burrows are too, in all of their functions of shelter, supply, movement, evasion, and breakout. The rhizome itself assumes very diverse forms, (...) includes the best and the worst: potato and couch grass, or the weed" (Deleuze & Guattari, 1987, pp. p.6-7).

Today, there is a considerable scholarly literature on the application of the rhizomatic theory and model to a variety of contexts and disciplines, including, e.g., literature and literary critics (Snyder, 1997); ethnicity and cultural studies (Guattari, 1995); cyberspace and the Internet (Broadhurst & Machon, 2012), (Aronowitz, Martinsons, Menser, & Routledge., 1996), (Turkle, 1995); communication studies (Johnson, 1997), (Jones, 1997); media studies (Poster, The Second Media Age, 1995); teaching and learning (Cole & Masny, 2014); neuroscience (Sampson, 2017) economy, (Araya & Peters, 2010), (Brande, 1998); business and management, (Yu J. E., 2006), (Yu J. E., 2013), (Rubenstein-Montano, et al., 2001); system modelling (Flood, 1987); surveillance studies (Bogard, 1996); political studies (Vayo, 2010), (Bay, 1991); war studies (Stone A. R., 1996).

We carried out a conceptual analysis of this vast literature. Results were confronted with established models of network analysis, risk communication and health communication, and with the experience developed by TELL ME. The main problem that we met - burdened with significant operational consequences - was the scarcity of real-life applications, except in the area of literary analysis (Honan E. , 2007), (Masny & Waterhouse, 2011) and teaching (Lourdes, Nery-Cura, & Guzman, 2018), (Murris, 2017). To be sure, we met several inspiring considerations about how applying the rhizomatic theory to different contexts and disciplinary areas, but very few real-life examples (if any, beyond the TELL ME project). Most papers devoted to methodological questions turned out being only theoretical papers (Mazzei & McCoy, 2010), (Masny, 2013), (Masny, 2016) or pieces of nice political activism. This is also due to an inherent "impossibility and undesirability of prescribing a set of methods to be used in following Deleuze and Guattari's work", as Honan and Sellers write in one of the few papers providing concrete examples and applications (Honan & Sellers, 2006). Yet, it is difficult to avoid the impression that sometimes the "rhizomatic jargon" is used chiefly to make more "fashionable" an old, established, theory. This is unfortunate because models are tools, they must be purposeful representations of reality; what matters with them is not their sophistication, rather whether they succeed in generating new operational abilities. We searched to avoid this flaw by anchoring our model to the materiality of stakeholder expectations; and by articulating the theoretical framework into more detailed sub-elements. Also, it should be stressed that selecting the rhizomatic model; we did not automatically espouse Deleuze and Guattari's ideological framework. Our approach to the rhizomatic model is pragmatic and anti-ideological.


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ARTICULATING THE RHIZOME
The Rhizomatic Model is a rich theoretical framework, which needs to be further articulated in order to become fully operational. To do so, we choose three completing perspectives on global interconnectivity, which are at the origin of the rhizomatic model and still constitute its foundational principles, (1) the notion of Digital Public Sphere; (2) the theory of the Digital Unconscious; (3) the metaphor of the Global Theatre. They allow putting into practice the rhizomatic theory because they are ultimately three different and complementary points of view on the same reality described by the theory (Figure 8). These three perspectives share the critical feature to be rooted in the tension, integral to the digital society, between presence and reference, appearance and representation (Sloterdijk, 2016), (deKerckhove & Visau, 2004), (McLuhan, 1970). The Internet is a stage (Quiring, 2014), and the digital public sphere is the stage of the world (Castells, 2008); so, the digital citizen has been captured within a play into the play, like actors in Hamlet. The real world and the virtual world have become like two mirrors facing each other, a global mise-en-abyme (Tinnell, 2011). The worldwide web is at once a virtual community (Habermas, 1991), a space of coexistence (Sloterdijk, 2016), the holographic projection of individual and collective archetypes ((Brock Schafer, 2016), and a global stage (Tinnell, 2011) where everyone can fictionalize her life (Debord, 1967/1995). Deep biological reasons contribute to this phenomenon, as shown by the discovery of a class of neurons called "mirror neurons" activated both when individuals act and when they observe the same action performed by other individuals. Human beings are "theatrical" (Burke K. , 1963/1964) in their inner neurological constitution. This explains why for many, today, virtual reality has become the most real reality.
Through these three perspectives, we aim to provide COMPARE Health Risk Communication with proper instruments to apply the rhizomatic theory to real-life
DIGITAL UNCONSCIOUS
The main features of the rhizomatic model, as provided by Deleuze and Guattari (Deleuze & Guattari, 1987), are
(1) connection and heterogeneity;
(2) multiplicity;
(3) asignifying rupture;
(4) cartography and decalcomania.
The principle of connection notes that "any point of a rhizome can be connected to anything other and must be" ((7). The connections between nodes on a rhizome are also random in their relationship to each other which embodies the notion of heterogeneity, whereas arborescent structures are distinct from each other and homogeneous within each tree. "A rhizome ceaselessly establishes connections between semiotic chains, organizations of power, and circumstances relative to the arts, sciences, and social struggles" (p. 7). The principle of multiplicity notes that: "it is only when the multiple is effectively treated as a substantive, 'multiplicity,' which it ceases to have any relation to the One as subject or object, natural or spiritual reality, image and world. Multiplicities are rhizomatic , and expose arborescent pseudomultiplicities for what they are" (p. 9). When a rhizome is broken or ruptured, it can still function within its remaining structure or can create new lines of growth from the ruptured area. Finally, the principles of cartography and decalcomania argue that the rhizome exists as a map and not a tracing. The structure of the tree is a self-replicating and homogenous metaphor where the leaves of the tree recreate the same structure as the root. Thus, the tree grows by tracing its previous structure. The rhizome, in contrast, is a map. "A map has multiple entryways, as opposed to the tracing, which always comes back to the same. The map has to do with performance, whereas the tracing always involves an alleged 'competence'" (p. 12–13). The concept is much more complex than the brief introduction here, and I will return to its implications following my analysis. However, it is important to note the central principles of the rhizome and its re-birthing of philosophic thought and knowledge. Rather than a unifying and guiding origin, rhizomatics decenter any privileging or hierarchizing of unity or Oneness.
Increase Font Size
PRESSBOOKS
Making the community the


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Connection and heterogeneity
Any point of a rhizome can be connected to anything other and must be (...) A rhizome ceaselessly establishes connections between semiotic chains, organizations of power, and circumstances relative to the arts, sciences, and social struggles. A semiotic chain is like a tuber agglomerating very diverse acts, not only linguistic, but also perceptive, mimetic, gestural, and cognitive: there is no language in itself, nor are there any linguistic universals, only a throng of dialects, patois, slangs, and specialized languages. There is no ideal speaker-listener, any more than there is a homogeneous linguistic community (Deleuze & Guattari, 1987, p. 8) (...) the rhizome connects any point to any other point, and its traits are not necessarily linked to traits of the same nature; it brings into play very different regimes of signs, and even non-sign states (Deleuze & Guattari, 1987, p. 21).
EXPLANATION: The rhizome expands through multiple connections, and it is not crossed by established modes of communication, or paths, or direction lines. Communication is not based on the structured, directional, transmission of pieces of information, because there are no established points or positions, directional lines, arrows, and nor stable networks to be crossed. Each communication receiver is contemporaneously a sender. The rhizome is an ongoing labyrinth, which progresses through proliferation of new offshoots and clones (e.g., blogs, web sites, FB pages, social media, etc.). Communication is continuously subject to a quantum-like effect, including entanglement and counterfactual phenomena. There are not ordinate series of events, chronological sequences; everything is "synchronically" asynchronous, because each element has its own internal clock and there is no external, absolute, time; the system has only short-term memory, everything is volatile.
CHALLENGES TO RISK COMMUNICATION: Connection and heterogeneity challenge the cornerstone of traditional risk communication, say, the distinction between certainty and uncertainty, predictability, and unpredictability.
EXAMPLE: Till a few years ago, pandemics were classified by insurance companies as "acts of God", the legal formula used in the English–speaking countries to indicate non-insurable natural disasters. They were considered unpredictable. In 2014, the Munich Reinsurance Company (Münchener Rück), a world's leading reinsurance company, started a strategic partnership with Metabiota, a San Francisco-based global company using "near-real-time data collection and comprehensive risk analytics for epidemics". In 2015, Munich Re accepted to reinsure against MERS the Korean government, which wanted to offer insurance coverage to international travellers and tourists. This led, in May 2016, the World Bank and the World Health Organization in to launch the Pandemic Emergency Financing Facility (PEF), a global insurance scheme for epidemics and pandemics risks, offered to 77 low-income countries. Munich Re, Swiss Re and GC Securities accepted to reinsure the World Bank for this program, so making it feasible. This was not because we can now predict epidemics with more certainty than in the past, but because of a shift in the collective mindset. Today, we "think" of epidemics in a radically different way. In less than three years, the world has changed more than over centuries.
COROLLARY: global hypertext
The Internet is made up of material, physical, objects, computers, cables, transmitters, and so, but it is much more than the sum of its parts. "The World Wide Web is already an emergent property of networks" (deKerckhove & Viseu, 2004) . The digital world can be conceived as a huge, global, unique, hypertext. Digital networks work thanks to programmes, which standardize them, allowing interconnection and exchange of information. The Internet is global in dimension, but it needs local programmes to work, it is decentralised but not anarchic, it is ruled by codes. Networks and codes create the hypertext (deKerckhove e Viseu 2004), which is much more than interconnection between several texts. The main features of the global hypertext are, (1) language hybridization; barriers between audio and visual (and tomorrow also haptic and olfactory) sensory modalities are overcome, as well as barriers between different linguistic codes and verbal/non-verbal communication; (2) simultaneous capacity for synchronous and asynchronous communication, the time of the Internet is a property of its nodes, which can release or retain communication in any moment; in the digital sphere time is an issue of pertinent retrieval, the "timeless time" (Castells 2007); (3) human-machine hybridization; knowledge and memory are processed by machines and humans coupled together; (4) privatization of global matters, publicization of private subjects: global events are perceived as though they were private occurrences, and very private, intimate, events are divulged as though they were public facts; (5) shared cognition and shared memory, nothing can be truly forgotten once it has been digitalised, and nothing can be no longer private and individual, the digital is shared by definition.

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Multiplicity

There are no points or positions in a rhizome, such as those found in a structure, tree, or root. There are only lines. When Glenn Gould speeds up the performance of a piece, he is not just displaying virtuosity; he is transforming the musical points into lines, he is making the whole piece proliferate. The number is no longer a universal concept measuring elements according to their emplacement in a given dimension but has itself become a multiplicity that varies according to the dimensions considered (...) (Deleuze & Guattari, 1987, p. 9) (...) The rhizome is reducible neither to the One nor the multiple. It is not the One that becomes Two or even directly three, four, five, etc. It is not a multiple derived from the One, or to which One is added (n + 1). It is composed not of units but of dimensions, or rather directions in motion. It has neither beginning nor end, but always a middle (milieu) from which it grows and which it overspills (Deleuze & Guattari, 1987, p. 22).

EXPLANATION: In the rhizome - in its multiple dimensions, languages, and symbolic codes - no roles are established in advance. In early Renaissance, most university scholars and rulers made the momentous mistake not to realise that the world was entering the "Gutenberg Galaxy", they did not comprehend that the printing revolution would have overturned traditional forms of intermediation, established routes of information, modes for transmitting knowledge, criteria to assess the truth and to identify trustworthy sources. The consequence was that they were ultimately replaced by a new generation of scientists, who were not academicians and institutional authorities, rather genial "amateurs", like Galileo, Pascal, Fermat, Descartes, Newton, and so. Public health authorities and experts run today a similar risk if they do not realize that the world browser nullifies expert intermediation and makes traditional one-way messages, based on rigid criteria of scientific evidence, obsolete.

CHALLENGES TO RISK COMMUNICATION: Multiplicity of languages, technologies, values, cultures, sources, points of view, challenges the standard description of the risk communication ecosystem, based on well-segmented stakeholders, clear-cut layers of governance, and an ordered flow of communication, involving experts, policymakers, health care professionals and the public. More than fact telling, contemporary risk communication needs story-telling.

EXAMPLE: Since 24 June 2016, a day after Britain voted to leave the European Union, a map has been circulating around the Web showing that there is an overlap between areas which were more affected by bovine spongiform encephalopathy (mad cow disease) during the 1992 epidemics, and areas where most voters voted the "Brexit"(https://www.snopes.com/mad-cow-versus-brexit/). This news was clearly a satire, as it was enough to search for a true map showing the distribution of mad cow cases in the UK to realise that the map showing an overlap between mad cow outbreak and Brexit was a fake. Yet, some journalists and economists took it very seriously, the fake map circulated around Twitter (https://goo.gl/Qjbt4x) and Facebook (https://goo.gl/U3u5em) collecting several mentions. Why was this fake news so successful? Because it told a story which embodied people's opinion that the EC, as well as the overall international community, overlooked peoples' needs and citizens' life during the Mad Cow crisis. People were scarcely interested in whether maps were true or false, or if the distribution of voters for Brexit truly overlapped with the distribution of people who suffered from the economic backlash caused by the outbreak. The most important fact was that, in 25 years, only 223 people have been diagnosed with the variant Creutzfeldt-Jakob Disease (vCJD) worldwide, while the impact of the measures taken to contain the bovine outbreak caused a loss of £3.2bn a year in UK (0.5% of UK GDP), of 130,000 working places (0.5% of total employment), with a total negative economic impact between 0.1% and 0.2% of UK national income (GDP) (https://goo.gl/amA84f). To our best knowledge, there are no studies investigating the impact that such an economic disaster had on health conditions of UK population; chances are that it was much more relevant than the potential impact of vCJD outbreak.

COROLLARY: Immanence
In the digital world, one knows only what one can retrieve; digital knowledge is retrieving. Knowledge is impermanent. In the printing era, texts were supposed to be in the "final form", once printed, a book is locked up; by contrast, digital texts are fluid, they are never definitive, they are always potentially in progress. Counterintuitively, digital communication is much more emotionally rich than written/printed communication, in fact, it is so much close to orality, that Walter Ong speaks of "second orality" or "electronic orality" (Ong, 1982). Electronic texts, thanks to their volatile nature and interconnectedness, can register interiority more than printed texts. Printed communication isolates, electronic communication incorporates. Whereas printed material situates the observer outside, at a distance, the screen tends to be immersive. When you interact with digital media, you are never passive, you continuously manipulate the text (be a written page or a picture or a video) and the context, navigating simultaneously on several pages and enlarging, reducing, changing the visual focus, of the main text. You can decide to save or not save the page, and you can enter the text to modify it. You can take a screenshot, and you can decide to share the text on global scale or only with a few selected persons, or only one individual, using a variety of social media, or the email. Communication is produced, processed, disseminated and stored almost instantaneously. This makes it reactive and emotionally intense (McLuhan, 1970).

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Asignifying rupture

A rhizome may be broken, shattered at a given spot, but it will start up again on one of its old lines, or on new lines. (...) Every rhizome contains lines of segmentarity according to which it is stratified, territorialized, organized, signified, attributed, etc., as well as lines of deterritorialization down which it constantly flees. (...) These lines always tie back to one another. That is why one can never posit a dualism or a dichotomy, even in the rudimentary form of the good and the bad (...) (Deleuze & Guattari, 1987, p. 10) (...) the rhizome is made only of lines: lines of segmentarity and stratification as its dimensions, and the line of flight or deterritorialization as the maximum dimension after which the multiplicity undergoes metamorphosis, changes in nature. These lines, or lineaments, should not be confused with lineages of the arborescent type, which are merely localizable linkages between points and positions. Unlike the tree, the rhizome is not the object of reproduction: neither external reproduction as image-tree nor internal reproduction as tree-structure. The rhizome is an anti-genealogy. It is a short-term memory or anti-memory. The rhizome operates by variation, expansion, conquest, capture, offshoots (Deleuze & Guattari, 1987, p. 23).

EXPLANATION: The rhizome can be severed, and its segments can be transported everywhere, keeping on being the original rhizome; consequently the rhizome can occupy simultaneously two or more distant territories, as it happens in quantum communication because of the entanglement effect. This implies that the digital rhizome is de-territorialized, there is not a one-to-one correspondence between segments and territories, because entities generated by segmentation are not colonies or copies; they are the original rhizome. Search engines are the plastic representations of the ongoing proliferation of the rhizome as with the printing revolution heralded the birth of a new class of media, newspapers and magazines, the digital revolution has created a new concept of communication media, the search engines, which are rated by the Internet users as the most important and reliable source of online information.

CHALLENGES TO RISK COMMUNICATION: The central quality of a-signifying segmentarity owned by the digital rhizome challenges risk communication because it calls in question standard models of network analysis and linear models for interpreting the digital world and the ways in which communication propagates. Big data are qualitatively different from traditional statistics provided in the past the overall framework for risk communication. Noise is a problem which typically affected analogue systems, digital communication is much less disturbed by noise, and this radically changes communication rules. While in traditional networks, the main goal was to prevent information loss and degradation, in the rhizomatic web information is continuously cloned and regenerated. The goal is thus to drive transformation processes through the ongoing proliferation of new offshoots; the problem is how protecting meanings, while they move through the world web, embodied in multiple languages, codes, and frames.

EXAMPLE: In 2009, Google's scientists announced Google Flu Trends, an innovative initiative for aggregating and analysing search queries to detect an online sign of flu epidemics. A few months later, a swine flu outbreak made its appearance in Mexico, caused by a strain of H1N1 influenza virus, the same strain responsible for 1918 "Spanish" pandemics. Soon, the virus spread all over the world, causing the fear that it could cause a deadly pandemic. In such a highly emotional context, Google's scientists published a paper in Nature, demonstrating that they could have detected the outbreak two weeks earlier by focusing on people's search queries. This paper raised enthusiasm and expectation, and for a couple of years it looked like big data could overcome the issue of pandemics unpredictability. Yet, after such an initial performance, Google Flu Trends was always wrong in detecting new flu outbreaks, and after a spectacular failure in 2013 (missing the flu peak by 140%), Google decided to discontinue the program (https://goo.gl/7JCgNB). What did happen? Google Flu Trends algorithm was quite vulnerable to seasonal terms unrelated to flu; moreover, scientists did not realize that normal people are not interested in the scholarly distinction between flu-like diseases and influenza, and consequently most people, supposed to search for influenza-related terms, were instead searching for flu-like diseases. Google's scientists also overlooked a massive framing effect caused by Google itself, which used Google Flu Trends to improve its search algorithm, recommending searches based on Google Flu Trends results, so creating a sort of "self-fulfilling prophecy" effect. Google also introduced a number of new health-based add-ons, and Google's scientists did not realise that they would have caused further, unpredictable, framing effects (https://goo.gl/fpeFBS). In conclusion, Google's scientists made the seminal mistake to overestimate data veracity and underestimate their volatility (Lazer, Kennedy, King, & Vespignani, 2014). Surprisingly enough, they approached big data with still a small data mindset.

COROLLARY: Assemblage

Assemblage means to shift away from tree-like and hierarchal classifications based on binary oppositions (Clarke & Parsons, 2013). It means a model where one search things and people with deliberate equality. The rhizome progresses through local synthesis rather than global analysis. A rhizomatic model must assist health communicators in capturing the big picture of local events and to "resonate" them on a global scale. For instance, instead planning a global communication strategy on flu epidemics, the rhizomatic model suggests studying in-depth mental and communicational dynamics within local outbreaks of flu, and then to project results on global scale, which is not, pay attention, to generalise findings. Generalization implies the idea that the same findings gotten on local scale can be transposed ipso facto on global scale; projection means instead that local findings should be searched for patterns, which could be then applied on global scale; communication patterns are, ultimately, myths and proto-myths (Burke K , 1966), (Lule, 2001).


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The rhizome is not amenable to any structural or generative model. It is a stranger to any idea of genetic axis or deep structure (...) The tree articulates and hierarchizes tracings; tracings are like the leaves of a tree. The rhizome is altogether different, a map and not a tracing (...)The map does not reproduce an unconscious closed in upon itself; it constructs the unconscious. It fosters connections between fields, the removal of blockages on bodies without organs, the maximum opening of bodies without organs onto a plane of consistency. It is itself a part of the rhizome. The map is open and connectable in all of its dimensions; it is detachable, reversible, susceptible to constant modification. It can be torn, reversed, adapted to any kind of mounting, reworked by an individual, group, or social formation. It can be drawn on a wall, conceived of as a work of art, constructed as a political action or as a meditation (...) A map has multiple entryways, as opposed to the tracing, which always comes back "to the same." (Deleuze and Guattari 1987, 11) (...) In contrast to centred (even polycentric) systems with hierarchical modes of communication and preestablished paths, the rhizome is a decentered, non-hierarchical, nonsignifying system without a General and without an organizing memory or central automaton, defined solely by a circulation of states (Deleuze and Guattari 1987, 22).
EXPLANATION: The centre of the rhizome is everywhere, and its perimeter is nowhere, it means that one is always in the core of the rhizome, no matter how marginal one believes to be. There is not an "outside", as the world browser is going to coincide with the physical world. This explains why it is practically impossible to escape from the digital sphere once one entered, and information can hardly be removed and erased.
CHALLENGES TO RISK COMMUNICATION: The distinction between local and global risk communication makes little sense today, as in the rhizome any place is at the same time local and global. The traditional notion of risk communication, based on global information campaigns, designed at national and supra-national levels, and implemented at local level by health care professionals, is hardly tenable. Local communication is increasingly having a significant global impact, while global communication is increasingly often marginalised. This is also for a deeper reason, it is because people rely on personalized messages, they want to feel unique, and to be treated as such. The more communication campaigns are apparently global and generic, the less people trust in them.
EXAMPLE: World Bank estimate, 90% of the cost of Ebola outbreak was due to "irrational attempts of the public to avoid infection" (http://www.bbc.com/news/world-africa-29603818). Institutional communication was mostly well done, aware of previous communication failures, and used both traditional and innovative tools (https://goo.gl/kx34hc). The point was that actual Ebola communication hardly followed any structured route or established pathway. A 2017 study carried out by Roberts and coll. (Roberts, Seymour, Fish, Robinson, & Zuckerman, 2017) demonstrated that Ebola perception was globally driven by social media, and the Internet "individuals from around the world shaped the conversations with their social engagements within the network by sharing stories of interest and by clicking on stories shared by others". These stories, chiefly including personal emotional narratives, were mostly generated in West Africa – where the epidemics started. Overall, their penetration was - according to Robert and coll. - 50% higher than scientific information generated by health authorities and established experts.
COROLLARY: Nomadism
A rhizomatic model must be explorable from where one is; there is no pre-determined point of departure. Within a rhizomatic model, one should be able to move from place to place, from idea to idea, and from concept to concept. Internal interconnections must cover the whole model so that one might move from any point to another. All connections are two ways; there are no point-of-no-return in a rhizomatic model; what is backwards is also forwards. One should be able to analyse the whole model locally without resorting to elements beyond close reach and proximity. Brief, the model should schematically represent the world so efficaciously described by Huffington Post journalist and international business expert, Valerie Berset-Price: "Millennials categorically have experienced worldwide events in real-time and in synchronization, and in ways very different from their parents. Where people just one generation before had to physically travel to another country to experience its culture, Millennials need only to Skype. Where their parents had to be watching television to get breaking news, Millennials get notifications from their back pockets. Where generations before had to head to a library to research a topic, Millennials have found their answers within a few presses of a thumb. Where information had to be vetted before it was broadcasted, now the burden of determining truth is on the person digesting it" (Berset-Price, 2015).


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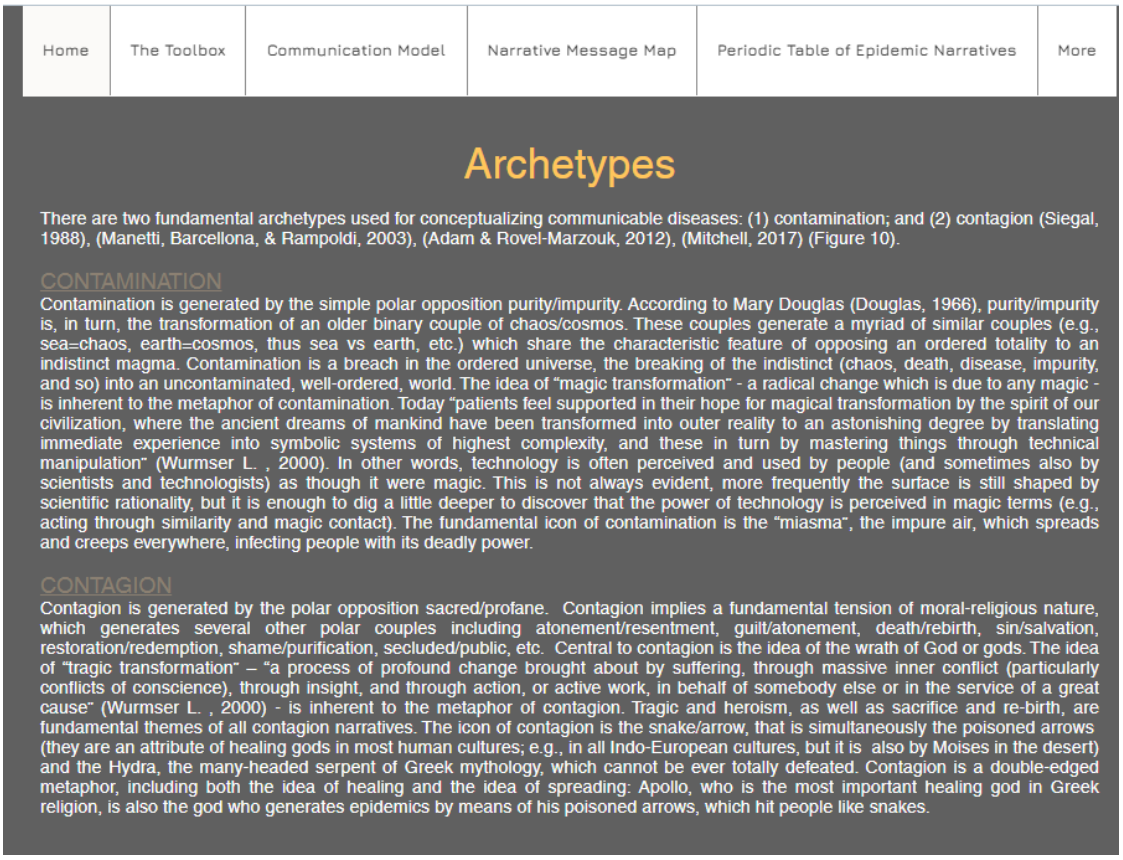
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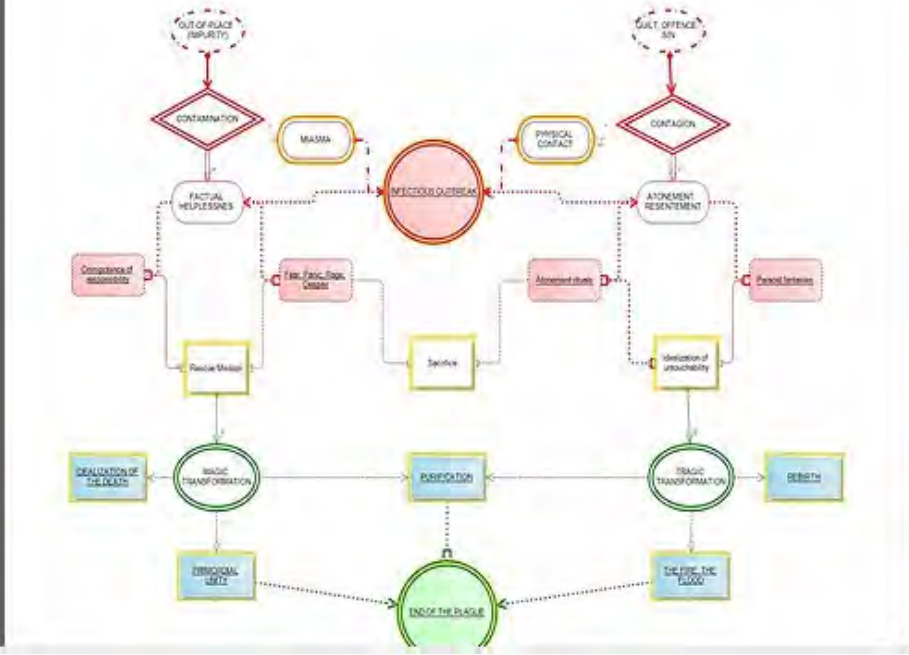
Archetypes
There are two fundamental archetypes used for conceptualizing communicable diseases: (1) contamination; and (2) contagion (Siegal, 1988), (Manetti, Barcellona, & Rampoldi, 2003), (Adam & Rovel-Marzouk, 2012), (Mitchell, 2017) (Figure 10).
CONTAMINATION
Contamination is generated by the simple polar opposition purity/impurity. According to Mary Douglas (Douglas, 1966), purity/impurity is, in turn, the transformation of an older binary couple of chaos/cosmos. These couples generate a myriad of similar couples (e.g., sea=chaos, earth=cosmos, thus sea vs earth, etc.) which share the characteristic feature of opposing an ordered totality to an indistinct magma. Contamination is a breach in the ordered universe, the breaking of the indistinct (chaos, death, disease, impurity, and so) into an uncontaminated, well-ordered, world. The idea of "magic transformation" - a radical change which is due to any magic - is inherent to the metaphor of contamination. Today "patients feel supported in their hope for magical transformation by the spirit of our civilization, where the ancient dreams of mankind have been transformed into outer reality to an astonishing degree by translating immediate experience into symbolic systems of highest complexity, and these in turn by mastering things through technical manipulation" (Wurmser L. , 2000). In other words, technology is often perceived and used by people (and sometimes also by scientists and technologists) as though it were magic. This is not always evident, more frequently the surface is still shaped by scientific rationality, but it is enough to dig a little deeper to discover that the power of technology is perceived in magic terms (e.g., acting through similarity and magic contact). The fundamental icon of contamination is the "miasma", the impure air, which spreads and creeps everywhere, infecting people with its deadly power.
CONTAGION
Contagion is generated by the polar opposition sacred/profane. Contagion implies a fundamental tension of moral-religious nature, which generates several other polar couples including atonement/resentment, guilt/atonement, death/rebirth, sin/salvation, restoration/redemption, shame/purification, secluded/public, etc. Central to contagion is the idea of the wrath of God or gods. The idea of "tragic transformation" – "a process of profound change brought about by suffering, through massive inner conflict (particularly conflicts of conscience), through insight, and through action, or active work, in behalf of somebody else or in the service of a great cause" (Wurmser L. , 2000) - is inherent to the metaphor of contagion. Tragic and heroism, as well as sacrifice and re-birth, are fundamental themes of all contagion narratives. The icon of contagion is the snake/arrow, that is simultaneously the poisoned arrows (they are an attribute of healing gods in most human cultures; e.g., in all Indo-European cultures, but it is also by Moises in the desert) and the Hydra, the many-headed serpent of Greek mythology, which cannot be ever totally defeated. Contagion is a double-edged metaphor, including both the idea of healing and the idea of spreading: Apollo, who is the most important healing god in Greek religion, is also the god who generates epidemics by means of his poisoned arrows, which hit people like snakes.

CONTAMINATION	CONTAGION
The AGENT/POLLUTANT can be any object or person or action	The CONTAGIOUS AGENT is a powerful force, either human or supernatural, or natural
The POLLUTANT is out-of-place, there is always a border-trespassing event in contamination	The CONTAGIOUS AGENT causes a mix between sacred and profane items
There is no need for voluntary transgression or sin to generate impurity	The challenge is always generated by any form of hubris
Impurity does not depend on the nature and dose of the contaminating event	Contagion does not depend on the nature and dose of the contagious event
Impurity resists to purification; the bad is stronger than the good;	There is no shield against contagion; the bad is stronger than the good;
A contaminated object or person makes impure other objects and persons, but objects and persons made impure in such a way are not necessarily transmitting impurity outside	Contagion is a chain, where each link links another link
Contamination spread at a distance through the "miasma";	Contagion spread through contact, like poisoned arrows and poisonous snakes;



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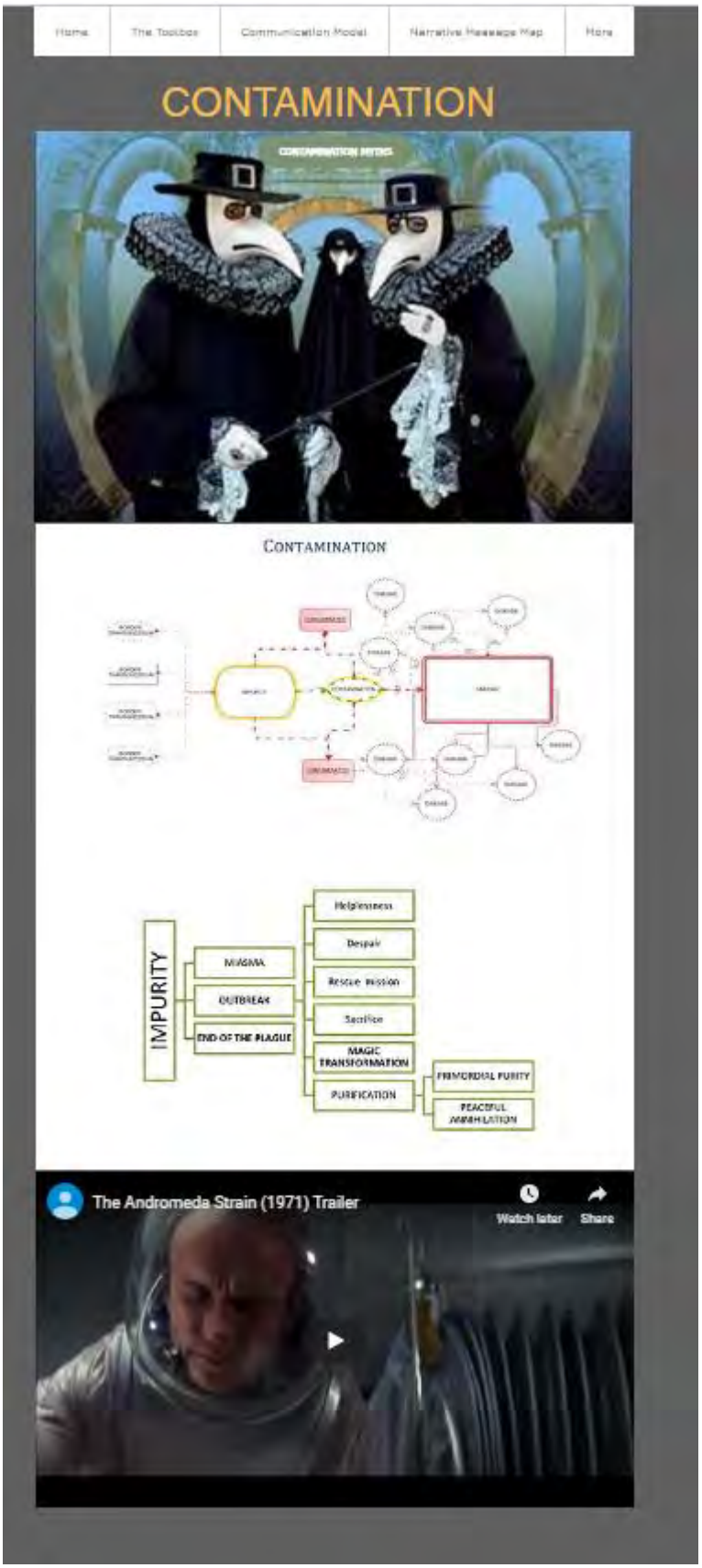
CONTAGION AND CONTAMINATION TROPES

TROPES AND THEMES OF CONTAGION AND CONTAMINATION		
Anger Mob	Airborne	Animals
Arrow	Ashes	Asymptomatic carrier
Atonement	Black	Blindness
Body fluids	Carrion	Claustrophobia
Confined spaces	Contact through sympathy	Covenant
Corpses	Cosmos vs Chaos	Crazy Mob
Crime, fault, punishment	Demoniac	Dose independent
Dove	Everlasting effect	First wave
Flood	Foodborne	Fortress
Fury	Hot Zone	GMOs
Grease	Hidden infected	Life vs death
Hybris	Insanity	Miasma
Light vs Dark	Magic transformation	Nirvana
Monastery	Moral crisis	Outer world
Ocean, sea	Order vs. disorder	Paranoia
Out-of-Place	Panic	Pesthouse
Parasite	Patient zero	Plague
Physical change without effect	Physical contact	Quarantine
Purification	Purity vs Impurity	Red
Rainbow	Rebirth	Sacrifice
Redemption	Rescue	Scapegoating
Safe harbour	Sanctity	Shaman
Sense vs. Nonsense	Sexual contacts	STDs
Sinner	Snake, poison	The seer
The endless fight	The evil ruler	The trap
The stranger	The tragic hero	Tragic transformation
The wise man	The Sorcerer's Apprentice	Universal destruction
Transmission of contagion	Disease X	Wrath of God
Untouchability, impenetrability	Villa	Zoonosis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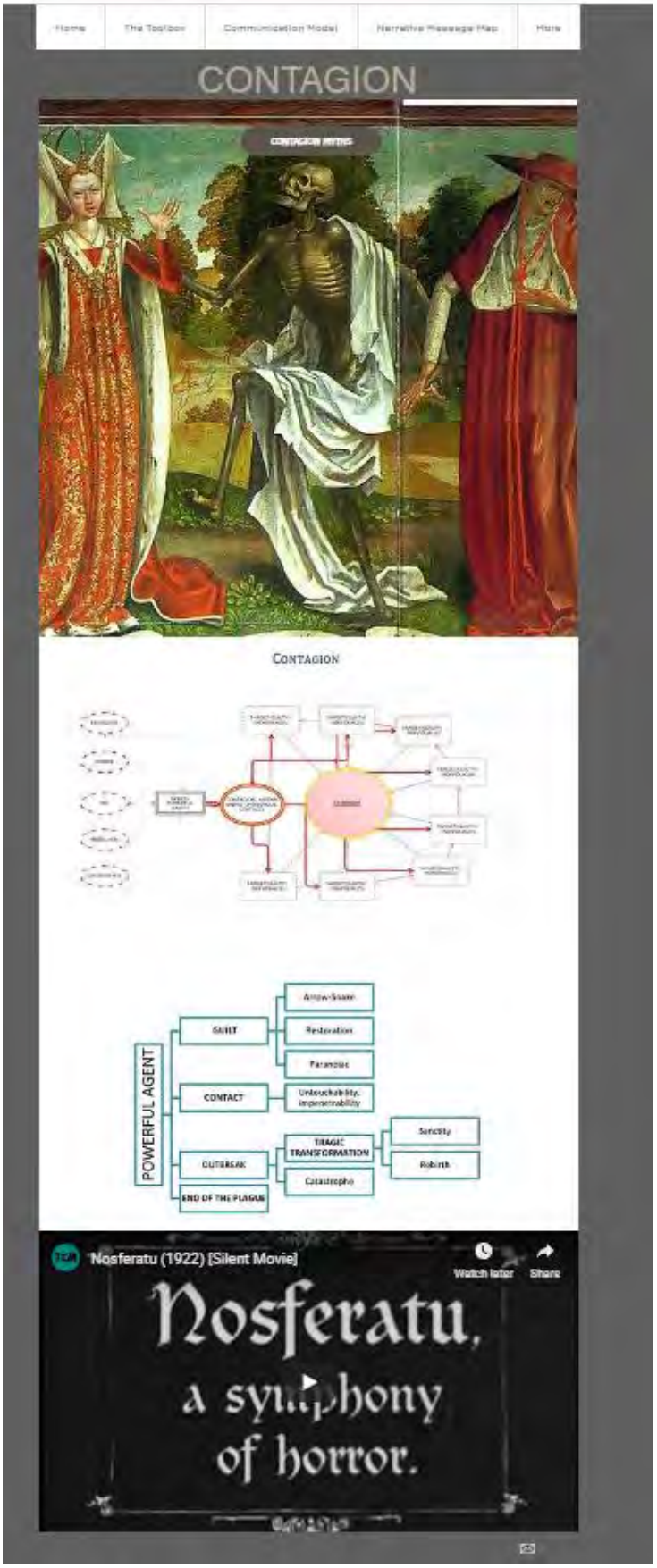
Despair
Rescue mission
Sacrifice
MAGIC TRANSFORMATION
PURIFICATION
PRIMORDIAL PURITY
PEACEFUL ANNIHILATION
The Andromeda Strain (1971) Trailer
Watch later
Share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TRAGIC TRANSFORMATION
Catastrophe
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Rebirth
Nosferatu (1922) [Silent Movie]
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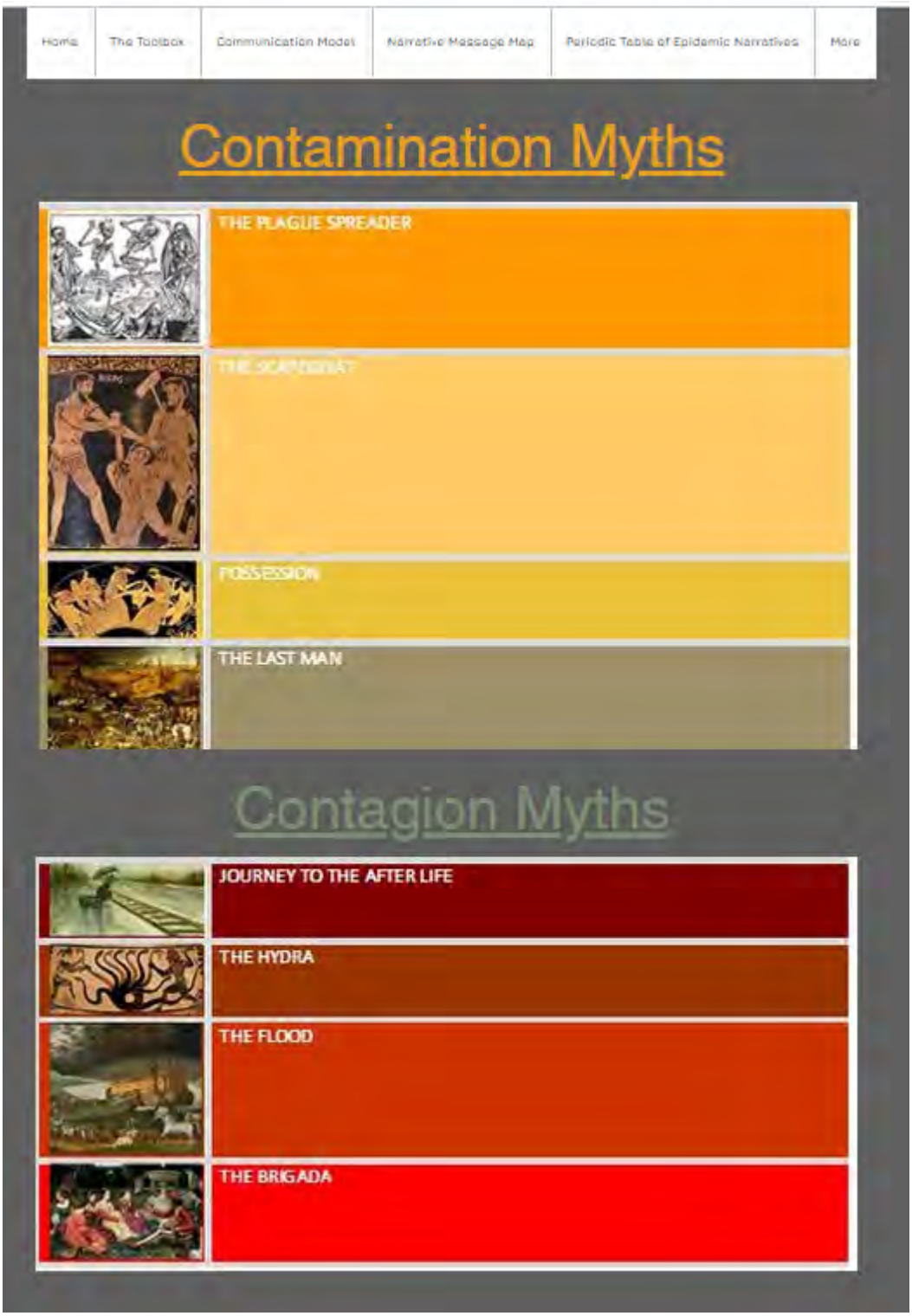
Nosferatu,
a symphony
of horror.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The Plague Spreader
The myth of the Plague Spreader is the foundational myth of contamination. Basically, it is the idea that contamination is brought by a "spreader", who brings with him or her, impurity. Contamination follows the rules of magic contamination that we previously discussed. The Plague Spreader is, so-to-speak, the "embodied miasma", a personified impurity, the Leper. It is to note that in all stories based on the Plague Spreader, infections spread by sympathy, there is no need for physical contacts between the Plague Spreader and people that he infects, if contacts occur, they are not an essential component. For instance, the myth of the Patient Zero, which was one of the foundational myths of early HIV pandemics, was only marginally based on scientific theories, or even on the knowledge of HIV transmission modalities. Instead, it was based mainly on notions of impurity, connected to sexual promiscuity, body fluid, etc. Also, it is important to note that the Plague Spreader is not necessarily aware of being a Plague Spreader, as well illustrated by the tragic story of Typhoid Mary. To be sure, there are also evil Plague Spreaders, like Dracula, who voluntarily spreads vampirism. Some videogames also exploit this pattern because it is easy to create games around such a plot.
Tropes and Characters: Patient Zero, Thypoid Mary, The Greaser, the hidden infected, the healthy infected, the evil spreader, the vampire, the HIV infected, the gay man, the prostitute, the drug-addicted, the superspreader


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The Scapegoat
The Scapegoat is very close to the Plague Spreader; the main difference lies in his function. While the Plague Spreader is supposed to bring contamination actively -he, she, spreads - the Scapegoat does not perform any real action. Basically, the Scapegoat is a victim, who must be sacrificed to purify the city or the land from the scourge. She/he is causing the plague because she/he is where she/he should not be. It is his only presence to be dangerous. The Scapegoat is out-of-place by definition, both in Ancient Greece and in the old Israel, the scapegoat was banned from the city, say, he was obliged to relocate. The best example of Scapegoat is the pharmakos in Ancient Greece. In the archaic period, the pharmakos was the "ugliest" citizen, who should be sacrificed (sometimes, only banned; other times, murdered) to free the city from the epidemics. The Scapegoat plays thus a twofold role; he simultaneously causes of impurity (and thus cause of the outbreak) and remedy, treatment. Wagner's Parsifal is an outstanding modern representation of the pharmakos: The Knights are stricken by the mysterious disease caused by the King Amfortas' rotting wound, which is the typical impurity, like Philoctetes' rotten wound. Parsifal purifies the Knights by his presence, by healing himself (refusing sexual contamination) he becomes wholly pure, and thus he purifies. The scapegoat is also the typical plot of all representations of epidemics in which governors, rulers, politicians, search for someone responsible to put the blame on for the epidemics, be the immigrant or the gay person
Targets and Characters: the lamb, the innocent accused, the false allegation, the false epidemic link, the immigrant, the illegal alien, the negro, the Leper, the Chinese, the drug-addicted, the prostitute, the stranger, the enemy, the homosexual, the sexual perverted, the Medean, the asymptomatic carrier


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The Possession
Possession is a further possibility generated by contamination. Impurity can, in fact, lead to losing control on oneself, one becomes possessed by evil forces. Priscilla Wald calls these stories "epidemiological horror story" (Wald, 2008, p. 27). The miasma - the rotted air which spreads from dead, rotten, bodies and corpses – breaks into minds and souls, people become crazy. All representations of panicked, angry, crazy, and dangerous, mob are generated by this myth: ranging from the panicked population who implores Noah to save them, to Zombie movies. Zombie epidemics show very well and demonstrate the relevance of possession to epidemic and outbreak representations. It was not by chance that, some years ago, CDC decided to launch one of their most successful information campaigns among youngsters by using Zombie epidemics.
Possession can also be spread by insect bites (e.g., the dancing plague, caused in south Italy by the spider Tarantula) as well as by food and drink. Possession is quite relevant to foodborne diseases. Radically, any situation that can be represented by something living (or perceived as being alive) that enters the body causing infection is potentially psychologically perceived as a possession. Therefore, all forms of emotional contagions are forms of contamination. They range from the most morbid ones, like Murnau's "Nosferatu" (which is based on the Dracula plot, but it is much more nuanced and sophisticated) to the Bacchae, which is still the model of most emotional contagion based on impurity and contamination. Three elements of the Bacchae are particularly relevant: (1) sexual confusion and promiscuity (think of public perception of HIV); (2) the visual significance of the body of the victim (be an animal or a human) which is broken and mangled, almost like in a cannibalistic ritual (think of morbid stories on Kuru, prion diseases, mad cow, and cannibalism); (3) Dionysus' ruthlessness and merciless (the Bacchae is not an example of wrath of God because the wrath of God is somehow logic, in the Bacchae Dionysus is naturally vicious). Note that most anti-vax narratives connecting vaccination to autism, are shaped in terms of magic possession: although they are not aware of it, these people represent autism as a disease caused by being possessed by an evil spirit entered the body through the vaccine.
Topoi and Characters: tarantula, zombies, evil influence, mad cow disease, Ebola, Zika, prions, malaria, helminthiasis, fungi diseases, food intoxication, contaminated food and drink, GMOs, nanoparticles, ideas, emotions, Kuru, cannibalism, prion diseases, tenacious microbes, brainwashing, body snatchers.
Stephen King
Cell (1978)
STEPHEN KING
Popular Tale
Rat-Catcher of Hamelin (XIV century)
Euripides
The Bacchae (405 BCE)
Fyodor Dostoevsky
Raskolnikov's Final Dream (1866)
Joe Hill
The Fireman (2016)
JOE HILL
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NOSFERATU (1922)


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Journey to the afterlife
Journey to the Afterlife is the myth of epidemics that create an outer world, a new, odd, space of life, provided with its own – often terrible - rules. The typical plot involves confined areas, isolated cities, quarantine, pesthouses, etc. In such limited, claustrophobic, universes, there is often the tragic hero, who fights against contagion or, at least, observes its dynamics with an intelligent and compassionate spirit. The great proto-scientific narratives on epidemics – from Thucydides to Defoe - have been generated by this narrative. Toronto during the SARS was a TV series completely invented around this myth, and thy myth can be traced any time an area is hit by an outbreak, and it is secluded with people in. Those who remain trapped in may react by representing their condition as a – temporary – journey to the afterlife. There too many tendencies that can prevail in this myth. It can prevail claustrophobic aspects, and thus, the secluded area becomes the deadly traps and the plot is around escaping attempts, or it can prevail feelings of human sympathy and solidarity; in such a case, stories tell of doctors, scientists, priests, volunteers, etc. This second possibility is the preferred one when media report of rescuer' s heroic efforts in epidemic areas. Basically, the representation which generates this myth is the idea of a confined space where a group of people are obliged to live together because of the disease, and they can infect to each other. This is the fundamental conflict of this myth. It is a contagion myth because c contagion between individuals is central to this situation.
the doctor, the rescuer, the volunteer, the nurse, the scientist, the humble hero, the hidden hero, the unknown hero, he who became infected to save others, the journalist, the infected runner, the hopeless, the burglar, the jackal, the vulture, the mother whose son dies, the mother who has no longer milk to breastfeed her baby, the dead baby, the starving crowd, the police officer, the guardians, the barbed wire, hot zones
Thucydides
The Plague of Athens (431 BCE)
Lucretius
The Plague of Athens (50 BCE)
W. Somerset Maugham
The Painted Veil
Daniel Defoe
A Journal of the Plague Year (1722)
Albert Camus
The Plague (1947)
Antoine-Jean Gros
Bonaparte Visiting the Plague Victims of Jaffa (1825)
Geraldine Brooks
Year of Wonders: A Novel of the Plague (2001)
Tori Herrera
The Transmigration of Bodies (2013)


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The Hydra
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The Hydra is the paradigm of contamination; we have already mentioned some features of the snake-arrow couple. Central to this contagion myth is the idea of infectious disease as caused by a poison that "hit" like the bite of a snake or an arrow. In fact, virus means poison, etymologically speaking. The second idea implied by this myth is the idea that – like arrows that "rains" from the sky when the enemy attack, or like the snake that changes the skin and always rebirth – infections cannot be debellated and there always a second time. We do not even suspect the pervasiveness of this contagion myth, but each time that a narrative on epidemics is based on the trope of "this is only the first wave", there is (at least, emotionally and psychologically speaking) the Hydra myth behind this representation. Consider, for instance, narratives about Ebola or about flu. Finally, inherent to this myth is the idea of moral fault and punishment. The poisoned, infected, arrows are God's arrows. Each time that an outbreak is collectively perceived as resulting from a moral fault, it is worth searching traces under-the-radar of this myth.
the snake, the hit, the fault, crime and punishment, the poison, the virus, the sudden death, the second wave, the fight, the combatant, the fighter, the soldier
The Iliad
Apollo's plague on the Achaeans (8th century BCE)
Craig DiLouie
The Thin White Line (2008)
Nicolas Poussin
the Plague at Ashdod (1630)
THE SEVENTH SEAL (1957)


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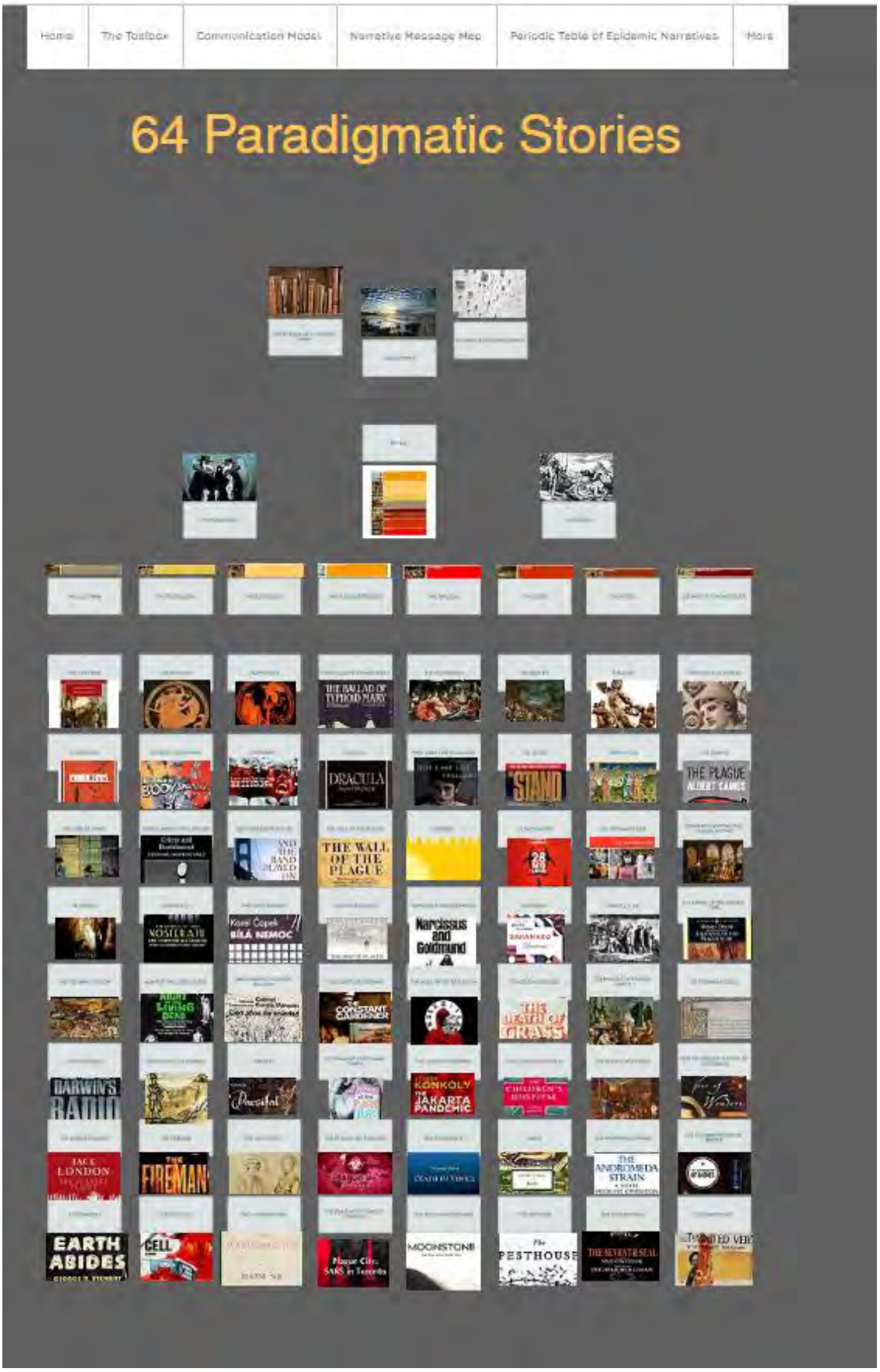
The Flood
The Flood is the contamination version of the total catastrophe. Differently from the Last Man myth, in the Flood myth, the tragic hero plays an important role and, sometimes, he might even succeed either in preventing the catastrophe or in regenerating the human species. Central to this contagion myth is the idea of a global catastrophe caused by a moral fault (it can be the scientific hubris of those who manipulate genetic codes, as it happens in many famous stories). The Flood is a myth on human responsibility; consequently most narratives on ecological aspects of emerging epidemics are influenced by this myth, sometimes even allegorical. The myth can have two primary solutions, either God, Nature, or whatever else has mercy, (and then a small group of rescued being gives origin to a healthier race or society) or the story turns into the Last Man myth. Contagion per se is not essential to this myth, although it is essential, this is a contagion myth because of the significance of the myth of tragic transformation and the relevance of the moral dimension. The moral function of epidemics is paramount in this myth; they are described like a trial which, at the end, could improve human beings, or, at least, eliminate the evil ones. Note that most current narratives focusing on human responsibility for ecological disruption and the emerging of new diseases are rooted in this myth. This quite evident in One Health communication, which usually opts for the optimistic solution of the myth. Finally, one should pay attention that there is also a dark side of the positive solution, extermination and rebirth. Basically, it was this myth behind Nazi ideology and conspiracy theory is often inspired by this myth
Noah, animals, the rainbow, the covenant, ecology, One Health, GMOs, Monsanto, genetic manipulation, escaped virus, apprentice sorcerer, crazy scientist, experiment, the CIA, Bill Gates, vaccines, anti-vax, conspiracy, the Illuminati, Indiana Jones, zoonosis, cross-species, new strain, bioterrorism, pandemics, animalism, ecoterrorism, animal rights, speciesism
Jose Saramago
Blindness (1995)
Stephen King
The Stand (1978)
Jim Crace
The Pesthouse (2007)
Chris Adrian
The Children's Hospital (2007)
Bible
Noah's Ark (620-540 BCE)
John Christopher
The Death of Grass (1956)
Guido Visibili
Kalki (1988)
28 DAYS LATER (2002)

The Brigada is the "happy" version of the pesthouse, say, a secluded place (usually a small place) where a group of people live confined during the outbreak. The fundamental difference is that in the pesthouse the infected people are inside, in the Brigada, the infected persons are outside. Obviously, this difference overturns the scenario, but also it alerts that the Brigada is always on the verge to turn into a pesthouse, the nightmare is close to the dream. This is the myth of the community of the happy few who takes refuge somewhere against the spreading of the outbreak; it is the myth of the of safe harbour, the myth of Camelot, the Castle, the Villa, and so. The myth is recurrent in all contagion accounts because of an apparent reason: if infection is caused by human contacts, then by secluding yourself, eliminating contacts, you may protect yourself. The myth is, however, richer and nuanced because it adds two further elements, (1) the small group of people who take refuge all together (the Brigada is never a solitary escape, although it could start as an individual flight); (2) the presence of love (or artistic, or intellectual, or cultural) bonds within people who compose the group. The epidemic can become even the alibi for withdrawing and creating such a small, idyllic, micro-society. The myth also has a dark, dangerous, side, because any Villa or Castle can quickly turn into a claustrophobic, paranoic, deadly trap, as impressively illustrated by E.A. Poe short story. Adverse outcomes of this myth are usually connected to moral judgement. Those who escaped and withdrew are described as selfish and arrogant, as the safe harbour ends up becoming their prison or, even, their coffin. This myth is echoed by political propaganda when it suggests to close borders and prevent alien entrance to avoid infectious diseases. It is also the myth behind some ecological visions, e.g., people who seek refuge in the country to avoid chemical pollutants, crimes, infectious diseases, and so. Also, all forms of belief in prophecies (notably, the catastrophic ones) are usually generated by the myth of the Brigada. Finally, the Brigada may be the myth implicit in those who hesitate to take, or even reject, collective preventive measures in case of outbreaks. Ultimately, these people fantasize that a small group of wealthy people – sharing healthy habits – do not need to be worried by infectious outbreaks, they are protected by living together, they do not need to vaccinate their family or to take antibiotics, it is enough eating healthy food, exercising and living within the small community.

the castle, the fortress, Camelot, Shangri-La, the plage, natural medicine, Ayurveda medicine, homeopathy, autonomy, herd immunity, complementary medicine, holistic medicine, anti-vax, herbal medicine, healthiness, wellness, the Yogi, the Wiseman, the Medicine Man, Big Pharma. David against Goliath, the Shaman, Thabo Mbeki, Gibson's law, Red pill and blue pill, false news, the monastery, the monk, the coming Middle Ages, Nostradamus, the desert island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ALBERT CAMUS
THE WALL OF THE PLAGUE
Narcissus and Goldmund
THE CONSTANT GARDENER
THE DEATH OF GRASS
DARWIN'S RADIO
KONKOLY THE JAKARTA PANDEMIC
JACK LONDON
THE FIREMAN
THE ANDROMEDA STRAIN
EARTH ABIDES
CELL
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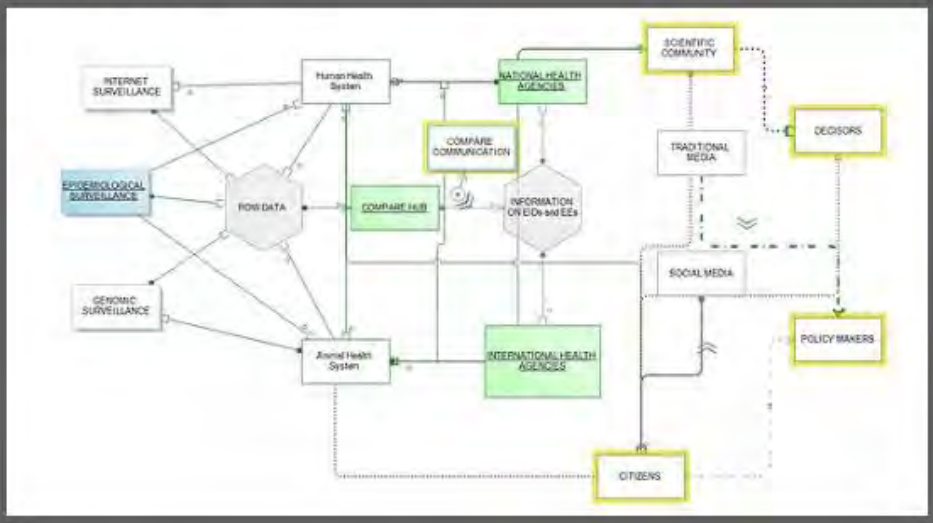
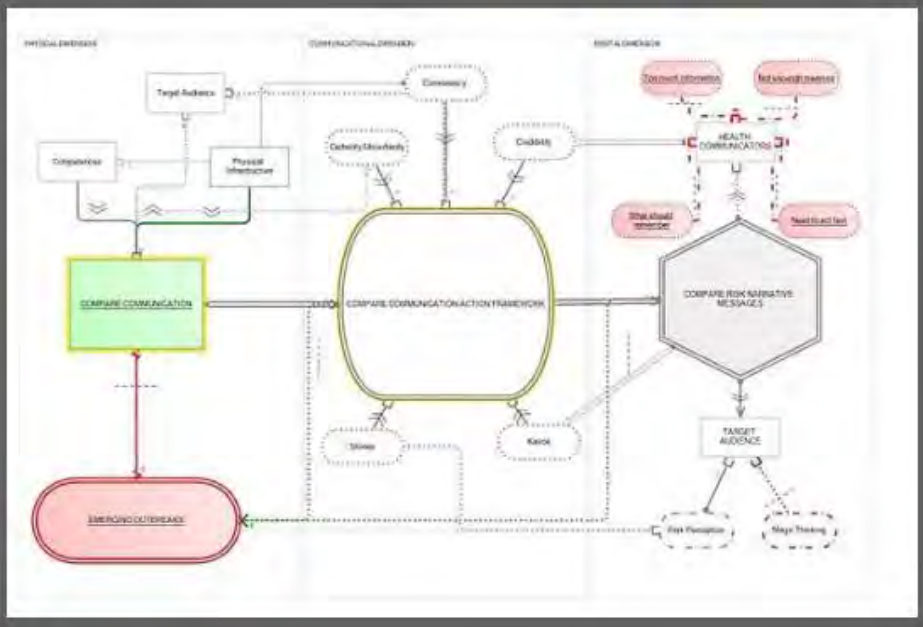
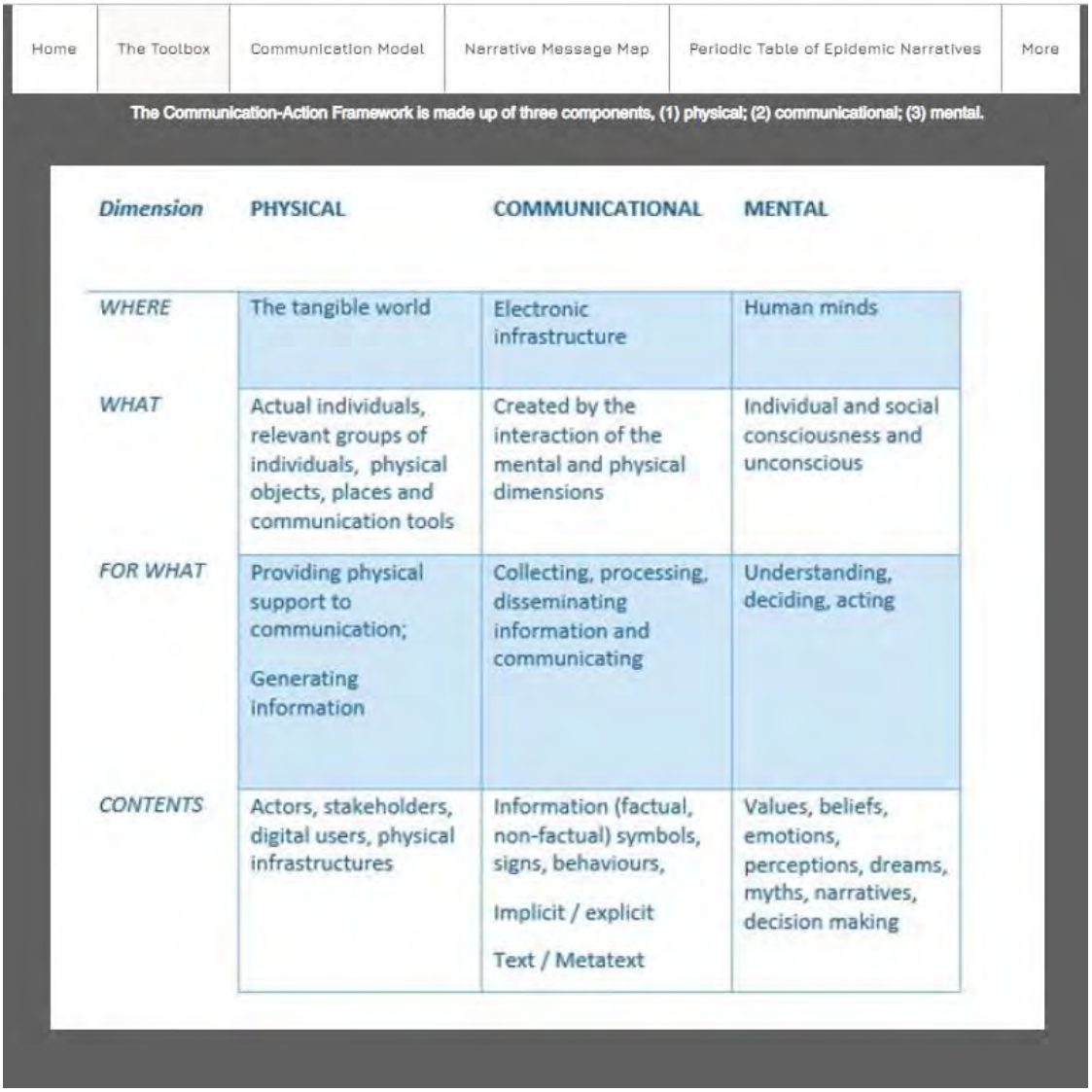
Communication - Action Framework

The notion of Communication-Action Framework is an integrated concept which takes simultaneously in consideration both the widest context and the actions of health officers and institutions. It is central to the notion of Communication-Action Framework the idea that action is communication, as well as communication, is action, and it is not possible to keep distinct these two levels.







Dimension	PHYSICAL	COMMUNICATIONAL	MENTAL
WHERE	The tangible world	Electronic infrastructure	Human minds
WHAT	Actual individuals, relevant groups of individuals, physical objects, places and communication tools	Created by the interaction of the mental and physical dimensions	Individual and social consciousness and unconscious
FOR WHAT	Providing physical support to communication; Generating information	Collecting, processing, disseminating information and communicating	Understanding, deciding, acting
CONTENTS	Actors, stakeholders, digital users, physical infrastructures	Information (factual, non-factual) symbols, signs, behaviours, Implicit / explicit Text / Metatext	Values, beliefs, emotions, perceptions, dreams, myths, narratives, decision making

As per the PHYSICAL DIMENSION of the communication environment, one should consider communication competences, physical infrastructure, and languages.

Communication competencies include

- Public health officers
- Public health professionals
- Health personnel involved in response to an outbreak (including medical and veterinary doctors, nurses, laboratory staff)
- Non-health public officers involved in response to an outbreak (administrative staff, law enforcement and police, local authorities, school authorities)
- Institutional health communicators (crisis communicators, health agency spokespersons, journalists hired by the health agency, other relevant authority spokespersons)
- Informal staff – volunteers, NGOs, religious charities - involved in response to an outbreak
- Medical journalists, Investigative journalists and writers
- Professional bloggers and other professional online commentators (e.g., professional YouTube video makers, Instagram Lifestyle publishers, etc.)

Each specific, actual, situation is made up of a mosaic of these competencies, which mix each time in unique way. Public health officers and professional communicators (spokespersons and journalists hired by the health agency) must balance the use of different competencies, such as scientific knowledge, epidemiological information, acquaintance with journalists, familiarity with social media, in order to communicate the intended message(s) to the target audience with an understanding of possible second and third-order effects on the rest of the global digital audience. One of the main keys to successful communication today is to remember that, in the digital public sphere, time and space are condensed, and everything happens synchronously and ubiquitously. Messages must thus be thought as though they were focused on a specific audience and, simultaneously, as though they were universal. Health authorities can use all communicational competencies to implement their communication strategy. Different competencies, whether smartly employed in crisis, are an essential enabling activity that facilitates development of an effective health risk communication.

Physical infrastructure is made of things, physical networks, and places that allow communicating. The development of digital technology is making physical infrastructure less and less important. Today, one could communicate globally without the need to possess sophisticated instruments or specific places from where to broadcast. This must always be considered by health communicators (e.g., a local press conference, an informal conversation, can easily become global events, it is enough that someone captures a video and stream it). the standard distinction between different types of health communication (e.g., press conference, face to face, interview, informal conversation, TV and Radio broadcast, newspaper article, etc.) made sense in the past less and less today. Today, any type of communication can seamlessly turn into another type. The message should be shaped in such a way not to be misunderstood if framework conditions change. In the digital sphere, there is no longer a context but always a hypertext

Finally, the physical dimension of the communication framework also includes languages, say, the overall system of symbolic representations, verbal and non-verbal, of a given social group or community.

The COMMUNICATIONAL DIMENSION of the Communication-Action Framework concerns the actual flow of communication and the main variables that must be considered to analyse it, which are (1) certainty; (2) credibility; (3) consistency; (4) kairos; (5) the story.

Certainty is the first variable of the communication-action framework. "Truth" refers to absolute, unconditional, statements about the totality (e.g., "every triangle has three vertices"), while statements subject to local, contextual, conditions (e.g., "it is raining" when? where?) could only be certain, they must be verified empirically. Certainty is both a psychological state and a criterion to assess scientific predictions. Uncertainty is not the opposite of certainty, but it concerns "the resultant of two psychological forces (..) doubt and ambiguity" (Weisberg, 2014, p. p.10). Both certainty and uncertainty depend on doubts, but uncertainty also includes a degree of ambiguity. So, in analysing the communicational dimension of the Communication-Action Framework, health communicators must address doubts and ambiguity. The more messages are dubitable and ambiguous; the more communication will transmit uncertainty.

The second variable of the communication-action framework is credibility. In the digital culture, credibility depends on three main variables, (1) the volume of people; (2) direct, personal, experience; (3) trustors. The concept of volume has little to do with majority and minority; rather, it regards the magnitude. If you are perceived to be supported by a large number of users, you increase your credibility. Another element which increases credibility is to be experienced or affected by the issue. In the online world, the opinion of a mother whose child has been vaccinated counts more than an expert's opinion. Also, trustors are important in the digital world. Trustors are testimonials, credible people who "borrow" their credibility to another person. Non-credible trustors transmit lack of credibility to their trustees, so they can jeopardise someone's else credibility. Health communicators must self-assess their credibility, taking into considerations all these variables.

The third variable of the Communication-Action Framework is consistency. Consistency is directly linked to credibility. One is consistent as long as she is narratively coherent, according to the criteria provided by Fisher. Health communicators must always consider whether health messages are plausible for their audience, that is to say, whether values and experiences related to the message are consistent with the message itself.

The fourth variable is kairos. Kairos is the perception of timing, the time opportune for communicating. The digital world is simultaneously in the past, in the present, and in the future. This makes the notion of kairos paramount. Health communicators must always consider that their messages will reach the target asynchronously because it is impossible to predict when they are received. Health messages must be thus designed to be effective in diverse temporal circumstances. This challenges the standard phasing of health communication in epidemics. For instance, a health campaign planned in the midst of an epidemic crisis will remain active on the Internet also when the crisis ends, and it must keep on making sense also with changed conditions.

The fifth variable of the Communication-Action Framework is the story. The story – or the implicit meta-story – is assessed by people according to good reasons, as per Fisher's definition. The good reasons are "those elements that provide warrants for accepting or adhering to advice fostered by any form of communication", in practice they are the elements categorised by Fisher as "narrative rationality", say, all those features which make people to believe and enjoy a story (e.g., fidelity, probability, plausibility, coherence, etc.). Health communicators must be aware that, behind any communication - even pure, factual, messages - there are always implicit stories, which work under-the-radar. Messages will be perceived and assessed by the public also through the filter of these stories.

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The **MENTAL DIMENSION** of the Communication-Action Framework includes the psychological aspects of the communication process. There are four main psychological conditions which can affect and modify communication, (1) information overload; (2), not enough meaning; (3) need to act too fast; (4) memory overload.

Information Overload refers to psychological difficulties to deal with too many pieces of information and various selection biases that this situation implies.

Not enough meaning refers to the gap between information and sense, data and meaning of data. Psychologically speaking, humans need to interpret information through causal-effect chains, which might explain why something happened and what it is going to cause in turn.

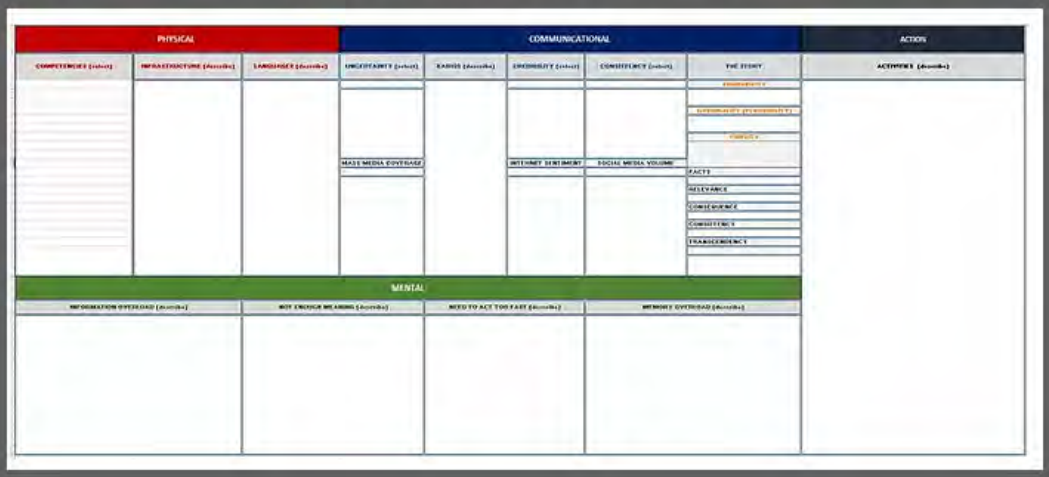
Need to act too fast refers to the gap between the amount the information that one must elaborate, and the limited time allotted to this process because of the need to act. This gap creates a peculiar form of information overload due to the imbalance between information and time.

Memory overload refers to the gap between the amount the information and the memory available to store it. Memory overload implies a form of information overload and a loss of information due to the need to reduce the memory load. It is to note that all these mental issues related communication processes are usually deal with by creating stories. In fact, stories reduce the information load by merging disparate details into a coherent narration, which makes sense, provides values that drive action, and it is easier to recall.

Details on the Communication- Action Framework are collected by investigating the physical, communicational and the mental dimension. Details can be concisely filed using a template that we have developed. This template is worksheet containing all major items mentioned, also including **Fisher's criteria for story assessment** (i.e., Good Reasons: Probability, Rationality, Fidelity) and three variables concerning communication impact, say, (1) media coverage; (2) Internet sentiment; (3) Social Media Volume. Fidelity is further split into its main components, (1) facts; (2) relevance; (3) consequence; (4) consistency; (5) transcendence.

The Communication-Action Framework template, which is part of the wider template of the COMPARE Narrative Message Map, is not a rigid checkbox tool, it must be used as flexible guidance, to recall all relevant items to be considered.

The Communication-Action Framework template is quite intuitive and easy to fill out. Some boxes include drop-down lists; other boxes are empty, and they need to be filled out with the details provided by health communicators. The outcome will be a synthetic, but comprehensive, card, describing the main features of a given Communication - Action Framework.



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The Communicational Dimension of Communication

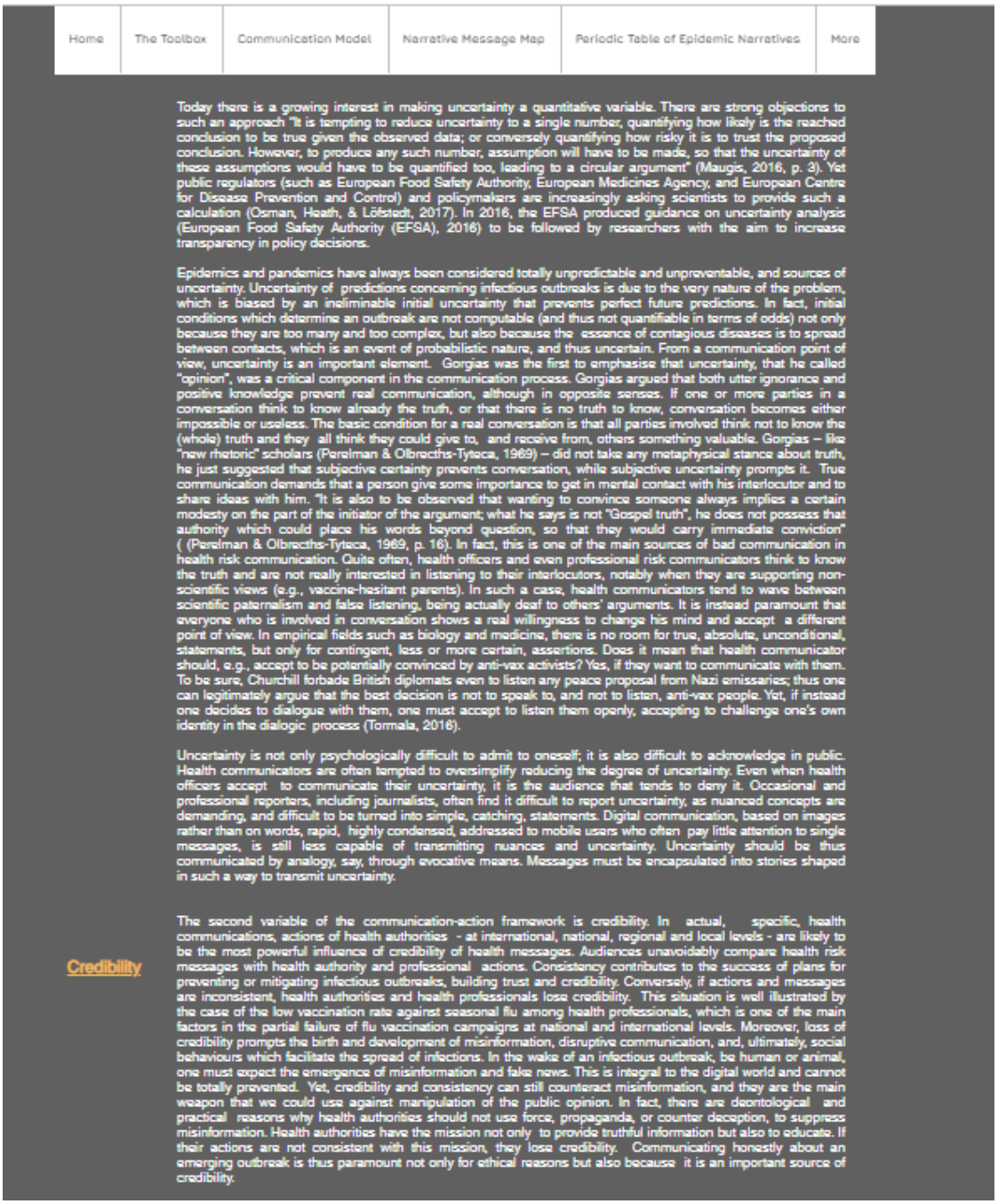
Each communication-action framework is unique and distinctive, as it includes actual actors, competences, infrastructures, collective and individual predispositions, actual communication needs, and so. Each communication-action framework must include (1) identification of main actors and audience; (2) communicational infrastructure; (3) identification of desired effects to support the achievement of an objective (e.g., effect → increasing social responsibility; objective → increasing vaccination rate). The communication-action framework critically depends on some variables.

Certainty

Certainty/uncertainty is the first variable of the communication-action framework. Certainty is both a psychological state – a.k.a. certainty as the degree of dubitability – and a criterion to assess scientific predictions. Uncertainty is not only the opposite of certainty, but it concerns a danger whose odds of coming to be cannot be calculated. The degree of uncertainty is "the resultant of two psychological 'forces. The horizontal axis represents our degree of doubt and the vertical axis, the degree of ambiguity we perceive. (…) uncertainty increases according to the 'amount' of doubt and ambiguity" (Weisberg, 2014, p. p.10).

There are two kinds of uncertainty, epistemic and statistical (Gluckman, 2016). Epistemic uncertainty is due to the incomplete or insufficient scientific understanding of the danger, including ignorance about probability, consequences, and/or magnitude of an event. Epistemic uncertainty can be addressed by advancing scientific knowledge. Statistical uncertainty is due to natural variability of the hazard (e.g., the emergence of a new viral strain). The decision whether natural variability should be considered stochastic or deterministic depends on the philosophical perspective we choose. Pragmatically speaking, we are, however, obliged to consider natural variability as though it were at random, like when we toss a coin. We can cope with natural variability only through statistics (Kaznatcheev, 2014). Uncertainty due to natural variability - i.e., statistical uncertainty - is unavoidable because it is intrinsic to the hazard. Finally, the third kind of uncertainty has been recently emerging, uncertainty related to Big Data. People usually think that Big Data reduces uncertainty, which is false. In fact, Big Data increases uncertainty in two senses (Maugis, 2016). First, it increases epistemic uncertainty because it increases predictability, without increasing scientific understanding (Kaznatcheev, 2013) (i.e., we unravel meaningful patterns, but we still ignore why they are meaningful). Second, Big Data increases also statistical uncertainty because data is collected at random (although in huge quantity), and we necessarily ignore whether models generated from Big Data are biased

	CONVENTIONAL STATISTICS	BIG DATA ANALYTICS
WHO	Statisticians, actuarial experts, social scientists	Data analysts (physicists, computer scientists, mathematicians)
SEARCH ON	Structured data collected on the basis of theoretical models (e.g., social classes, citizenship, etc.)	Vast, heterogeneous, data sets mined in search of patterns, trends, correlations and emergent moods
WHAT	Data purposely collected in specific groups	Data generated anyway by individuals, or sensors, throughout the world
THROUGH	Fixed scale of analysis (e.g., nation, region, city, etc.)	No fixed scale of analysis (e.g., mobile phone users, Google users, etc.)
HOW	Settled categories (e.g., blue collars, farmers, industrial managers, etc.)	No settled categories (e.g., brand advocates, millennials, digital moms, etc.)
FOR DOING WHAT	Picture of the past and/or the present	Insights across large populations and trend identification
TO ANSWER TO	Whether data supports initial assumptions	Whether data allows prediction
AIMING AT	Understanding	Predicting and prescribing
POTENTIAL BIAS	The volume of the informational content of the data might be insufficient, or the initial assumptions might be wrong	Despite its volume, the informational content of the data might be incomplete or biased because collected without any design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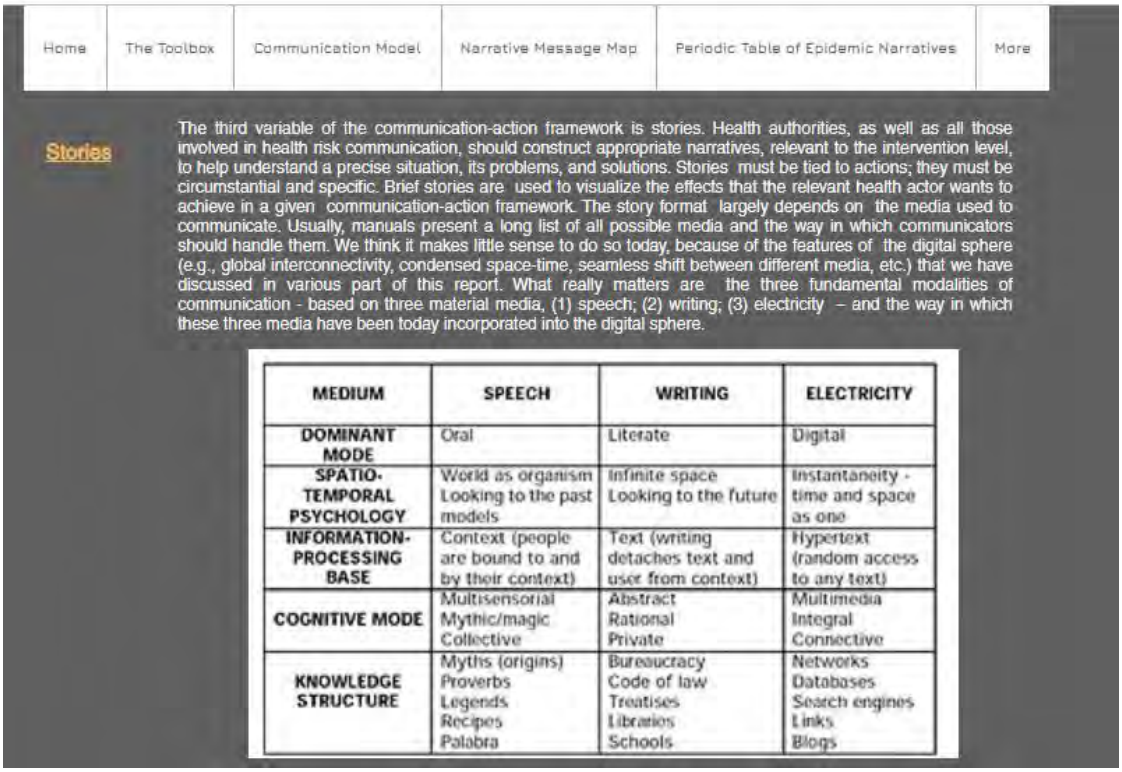
Today there is a growing interest in making uncertainty a quantitative variable. There are strong objections to such an approach "It is tempting to reduce uncertainty to a single number, quantifying how likely is the reached conclusion to be true given the observed data; or conversely quantifying how risky it is to trust the proposed conclusion. However, to produce any such number, assumption will have to be made, so that the uncertainty of these assumptions would have to be quantified too, leading to a circular argument" (Maugis, 2018, p. 3). Yet public regulators (such as European Food Safety Authority, European Medicines Agency, and European Centre for Disease Prevention and Control) and policymakers are increasingly asking scientists to provide such a calculation (Osman, Heath, & Löfstedt, 2017). In 2018, the EFSA produced guidance on uncertainty analysis (European Food Safety Authority (EFSA), 2018) to be followed by researchers with the aim to increase transparency in policy decisions.
Epidemics and pandemics have always been considered totally unpredictable and unpreventable, and sources of uncertainty. Uncertainty of predictions concerning infectious outbreaks is due to the very nature of the problem, which is biased by an ineliminable initial uncertainty that prevents perfect future predictions. In fact, initial conditions which determine an outbreak are not computable (and thus not quantifiable in terms of odds) not only because they are too many and too complex, but also because the essence of contagious diseases is to spread between contacts, which is an event of probabilistic nature, and thus uncertain. From a communication point of view, uncertainty is an important element. Gorgias was the first to emphasise that uncertainty, that he called "opinion", was a critical component in the communication process. Gorgias argued that both utter ignorance and positive knowledge prevent real communication, although in opposite senses. If one or more parties in a conversation think to know already the truth, or that there is no truth to know, conversation becomes either impossible or useless. The basic condition for a real conversation is that all parties involved think not to know the (whole) truth and they all think they could give to, and receive from, others something valuable. Gorgias – like "new rhetoric" scholars (Perelman & Olbrechts-Tyteca, 1969) – did not take any metaphysical stance about truth, he just suggested that subjective certainty prevents conversation, while subjective uncertainty prompts it. True communication demands that a person give some importance to get in mental contact with his interlocutor and to share ideas with him. "It is also to be observed that wanting to convince someone always implies a certain modesty on the part of the initiator of the argument; what he says is not "Gospel truth", he does not possess that authority which could place his words beyond question, so that they would carry immediate conviction" ((Perelman & Olbrechts-Tyteca, 1969, p. 16). In fact, this is one of the main sources of bad communication in health risk communication. Quite often, health officers and even professional risk communicators think to know the truth and are not really interested in listening to their interlocutors, notably when they are supporting non-scientific views (e.g., vaccine-hesitant parents). In such a case, health communicators tend to wave between scientific paternalism and false listening, being actually deaf to others' arguments. It is instead paramount that everyone who is involved in conversation shows a real willingness to change his mind and accept a different point of view. In empirical fields such as biology and medicine, there is no room for true, absolute, unconditional, statements, but only for contingent, less or more certain, assertions. Does it mean that health communicator should, e.g., accept to be potentially convinced by anti-vax activists? Yes, if they want to communicate with them. To be sure, Churchill forbade British diplomats even to listen any peace proposal from Nazi emissaries; thus one can legitimately argue that the best decision is not to speak to, and not to listen, anti-vax people. Yet, if instead one decides to dialogue with them, one must accept to listen them openly, accepting to challenge one's own identity in the dialogic process (Tormala, 2016).
Uncertainty is not only psychologically difficult to admit to oneself; it is also difficult to acknowledge in public. Health communicators are often tempted to oversimplify reducing the degree of uncertainty. Even when health officers accept to communicate their uncertainty, it is the audience that tends to deny it. Occasional and professional reporters, including journalists, often find it difficult to report uncertainty, as nuanced concepts are demanding, and difficult to be turned into simple, catching, statements. Digital communication, based on images rather than on words, rapid, highly condensed, addressed to mobile users who often pay little attention to single messages, is still less capable of transmitting nuances and uncertainty. Uncertainty should be thus communicated by analogy, say, through evocative means. Messages must be encapsulated into stories shaped in such a way to transmit uncertainty.
Credibility
The second variable of the communication-action framework is credibility. In actual, specific, health communications, actions of health authorities - at international, national, regional and local levels - are likely to be the most powerful influence of credibility of health messages. Audiences unavoidably compare health risk messages with health authority and professional actions. Consistency contributes to the success of plans for preventing or mitigating infectious outbreaks, building trust and credibility. Conversely, if actions and messages are inconsistent, health authorities and health professionals lose credibility. This situation is well illustrated by the case of the low vaccination rate against seasonal flu among health professionals, which is one of the main factors in the partial failure of flu vaccination campaigns at national and international levels. Moreover, loss of credibility prompts the birth and development of misinformation, disruptive communication, and, ultimately, social behaviours which facilitate the spread of infections. In the wake of an infectious outbreak, be human or animal, one must expect the emergence of misinformation and fake news. This is integral to the digital world and cannot be totally prevented. Yet, credibility and consistency can still counteract misinformation, and they are the main weapon that we could use against manipulation of the public opinion. In fact, there are deontological and practical reasons why health authorities should not use force, propaganda, or counter deception, to suppress misinformation. Health authorities have the mission not only to provide truthful information but also to educate. If their actions are not consistent with this mission, they lose credibility. Communicating honestly about an emerging outbreak is thus paramount not only for ethical reasons but also because it is an important source of credibility.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Stories
The third variable of the communication-action framework is stories. Health authorities, as well as all those involved in health risk communication, should construct appropriate narratives, relevant to the intervention level, to help understand a precise situation, its problems, and solutions. Stories must be tied to actions; they must be circumstantial and specific. Brief stories are used to visualize the effects that the relevant health actor wants to achieve in a given communication-action framework. The story format largely depends on the media used to communicate. Usually, manuals present a long list of all possible media and the way in which communicators should handle them. We think it makes little sense to do so today, because of the features of the digital sphere (e.g., global interconnectivity, condensed space-time, seamless shift between different media, etc.) that we have discussed in various part of this report. What really matters are the three fundamental modalities of communication - based on three material media, (1) speech; (2) writing; (3) electricity – and the way in which these three media have been today incorporated into the digital sphere.
MEDIUM
SPEECH
WRITING
ELECTRICITY
DOMINANT MODE
Oral
Literate
Digital
SPATIO-TEMPORAL PSYCHOLOGY
World as organism
Looking to the past
models
Infinite space
Looking to the future
Instantaneity - time and space as one
INFORMATION-PROCESSING BASE
Context (people are bound to and by their context)
Text (writing detaches text and user from context)
Hypertext (random access to any text)
COGNITIVE MODE
Multisensorial
Mythic/magic
Collective
Abstract
Rational
Private
Multimedia
Integral
Connective
KNOWLEDGE STRUCTURE
Myths (origins)
Proverbs
Legends
Recipes
Palabra
Bureaucracy
Code of law
Treatises
Libraries
Schools
Networks
Databases
Search engines
Links
Blogs

Kairos

The fourth variable of the communication-action framework is kairos, which provides the focus for synchronization between communication and action. To Aristotle, the main function of kairos was to identify the right moment in which the evidence should be shown to the hearers. To Aristotle the perception of kairos is central to recognise the right moment, the place, the situation, to shift from words to material proof (Aristotle was speaking of kairos in judicial speeches, to persuade the court). Kairos is the inherent time of the digital world. "As well as collapsing distance or making it irrelevant, Internet technologies can disrupt time, shifting it from an unchanging or universal flow to a pliable variable in everyday interactions. Once a novelty, we now take for granted the ability to stop and start time in the midst of a conversation to consider and adjust our interactive choices. Most of us don't notice that we are, in effect, manipulating time to suit our purposes. Time is also shifted in ways we cannot control and may not notice, by the interface we're using, the quality of our network connection, and other factors. For example, technologies make it easy to keep the past present" (Markham, 2013, p. 291) The digital kairos is the time of the hypertext (Sheridan, Michel, Ridolfo, & Michel, 2012).

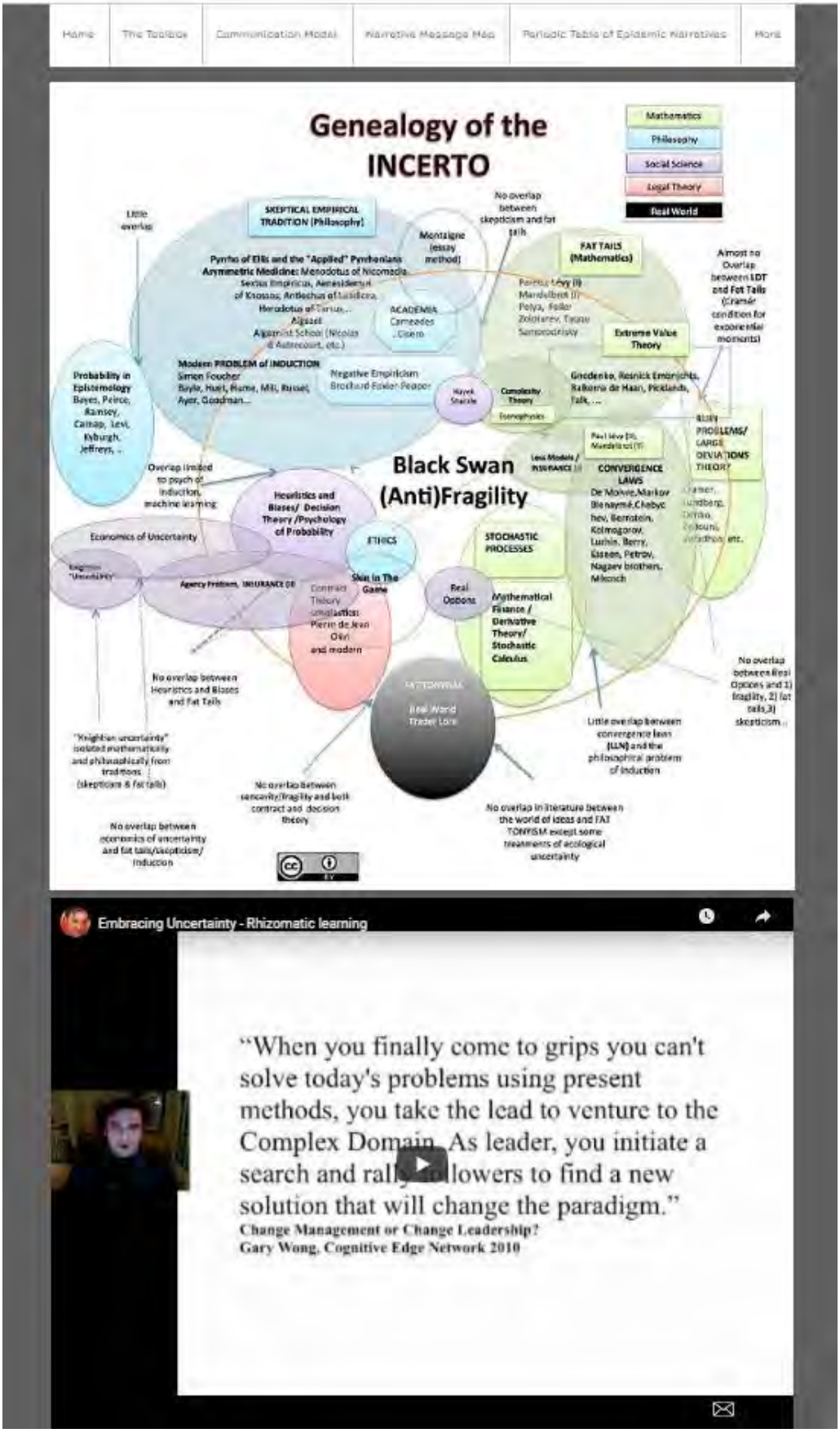
The kairos is the instant. There is a radical difference between moment and instant. "Moment" comes from the Latin verb moveo, to move. The "moment" is a spatial quantity that we use to represent time, like pendulum-like oscillations. The mental experience that shapes the notion of the moment is the process of a number of pendulum-like mechanisms in our brain. Our body is full of these biological clocks, which beat at different paces. Biologically speaking, we don't keep time, we keep several times at the same time (Buonomano, 2017) We are always simultaneously in the past, in the present, and in the future because our body includes several asynchronised clocks. Our body is made up of moments, each one differently located in space and time. So, we are always obliged to choose the pertinent moment, which is the "instant". "Instant" comes from a Latin verb which means "to be present", "to urge". The "instant" is thus a compelling presence. The idea of "presence", which is very difficult to put into words, is central to the digital and to the notion of "virtuality". Living in the instant means grasping the critical time, say, recognizing and seizing the kairòs (Cacciari, 1994). Walter Benjamin had in mind something similar when he wrote that human history is "formed not in homogenous and empty time, but (…) fulfilled by the here-and-now (Jetztzeit)" (Benjamin, 1974). This is particularly relevant to the process called, "collective symbolic coping", the sensemaking processes by which social groups interpret novel or unexpected events that threaten their worldviews, like an infectious outbreak. It is accomplished via the communication that arises around the event, conversations between individuals, mass-media communication, and, above all, the Internet. In these processes, representations of the event are constructed and diffused. These representations often appeal to collective patterns of images and thought that are used as conceptual anchors for the novel event.

Collective symbolic coping occurs in four stages: awareness, divergence, convergence and normalization. Awareness is when an issue emerges as a public concern (e.g., media reporting swine flu outbreak). In the divergence stage, multiple and often incompatible discourses emerge, creating ambiguity about the situation (e.g., is swine flu a real deadly risk for humanity or is it a "false pandemic" created by big pharma to sell vaccines and anti-viral drugs?). In the convergence stage, a single dominant discourse emerges, suppressing the others and reducing uncertainty about the event (e.g., swine flu is a serious but limited incident). Finally, in the normalization stage the event has been integrated into common sense and everyday life (e.g., swine flu was just an episode of a long story of cross-species transmission of flu virus). It should be noted that the progression of the four stages of the model is not necessarily linear and that individuals may go back and forth between different stages if new information is upcoming. The kairos of health and risk communication must be measured on these four stages of collective symbolic coping. Communication exploits the kairos as long as it is in tune at individual and collective levels with the stage when it occurs.

Consistency

The fifth variable of the communication-action framework is internal consistency among communicators. In health risk communication, there is often a tension between the broad message and engaging specific stakeholder groups. In the case of emerging outbreaks, there are always many different interests at stake, which then lead to corresponding informational intents (e.g., the tourism industry could tend to mitigate risks of epidemics). As such, health authorities should not contrast contradictory messages, which would immediately create a feeling of distrust in the audience, rather they must integrate their competencies with other stakeholders. Health authorities should seek two-way understanding with these stakeholders and listen to what they think and want to achieve. Effective health risk communication always requires an effective broad message and engaging all stakeholders in dialogue. Health agencies must find the right balance between using communication to give a broad message versus creating a dialogue.

Health authorities should balance between controlling the risk message and allowing for complete freedom of professional communicators. The controlled message does not allow for real, timely communication with stakeholders and digital audience. Spokespersons and journalist working for health agencies must be free to engage stakeholder groups and digital actors (e.g., the risk message addressed to digital moms cannot be the same of the risk message addressed to brand advocates). Yet, if professional communicators have total freedom of message and are driven only by marketing considerations, there is the high risk to create a gap between communication and action, which is – as we mentioned – one the worst communicational mistakes. A further important point is a gap between institutional communication and communication directly involved in response to an emerging outbreak. Institutional communication and crisis communication are related. and often the same people are involved in both. Yet, institutional communication and crisis communication must maintain a distinct awareness, to avoid communication conflicts. Communication fratricide (Box 5) occurs when messages are employed which adversely affect the audience, preventing the positive effects of concurrent messages (e.g., the health agency spokesperson states that the agency position is to make measles vaccination mandatory by law, while health communicators are trying to convince vaccine-hesitant parents to vaccinate their children voluntarily).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"When you finally come to grips you can't solve today's problems using present methods, you take the lead to venture to the Complex Domain. As leader, you initiate a search and rally followers to find a new solution that will change the paradigm."
Change Management or Change Leadership?
Gary Wong, Cognitive Edge Network 2010

Credibility and digital trust

The word "trust" comes from a Proto-Germanic term *treuwaz*, source of Old English *treowian* "to believe, trust". They both originate from PIE root *deru- which means "be firm, solid, steadfast." Thus trust means to rely on the solidity of something or someone. By definition, trust occurs when an individual is assured of the result of an action, and the occurrence of good or bad results is contingent on the behaviour of another agent that could be a person, a machine, a process or a system. Trust is connected with cooperation and, like any other form of cooperation, trust implies a lessening of individual liberty to a certain degree. From a more technological perspective, trust can be described in terms of requirements for a system, device or an electronic process that need to be trusted. For instance, the Trusted Computing Group (TCG) defines "trust" by saying that "a trusted system or component is one that behaves in one manner for a particular purpose".

In communication terms, there are various conditions that must be fulfilled so that communication may be trusted and positively received and elaborated by receivers. Trust implies both trust in the communication system and in the sender. A communication system is trustworthy if its predictable behaviours are in accordance with expectations. The senders are trustworthy if they are credible. Rigorously speaking, trustworthiness and credibility are not exactly the same. Trustworthiness literally means to be worthy of belief and confidence, deserving of trust. It is thus an "objective" condition, which could in principle be assessed, depending on several verifiable conditions. Credibility is instead a subjective condition, it concerns perceived trustworthiness, say, to what extent someone or something is perceived to be trustworthy. What is relevant in communication is not the abstract, objective, trustworthiness, rather the actual credibility. A sender can be theoretically trustworthy but if it is not perceived to be such by the receiver, say, if it is not credible, communication will be anyway jeopardized.

There is a vast literature on the main factors affecting credibility (Renn & Levine, 1991), (Peters, Covello, & McCallum, 1997). They include factors related both to communication contents and the way in which contents are shaped. Content factors positively affecting credibility include the perceived relevance of the information disclosed, its accuracy, regular updating, clearness, transparent and reputable sources, disclosing uncertainty, explicit conclusions and goals. Content factors which could instead jeopardize credibility are stalled or delayed reporting, inconsistent updating, perceived biases, questionable sources (Covello V. , 2009). Formal factors, which are expected to increase credibility, include using metaphors and narrative, showing empathy, transmitting emotional intensity, transmitting competence and leadership. Formal factors, which could instead diminish credibility, include use of scientific jargon, pretending to possess the "unquestionable truth", showing indifference or lack of empathy or lack of consideration of the public opinion, transmitting incompetence, being perceived as an outsider (Covello & Allen, 1988).

All these factors are still relevant and should be taken into account also in the digital world. Yet, there are also some critical differences between the pre-digital and the digital public spheres. The transition from the analogue culture to the digital civilization has been implying a series of social transformations similar to those that occurred with the transition from the pre-printing to the printing culture (Eisenstein, 1983). We are now in the midst of a new paradigm shift, driven by the digital revolution and the rise of data science (Hodson, 2018). The concept of scientific knowledge is radically changing, instead of aiming to unravel causal relationships, science is now focusing on discovering patterns and mining from them actionable information. This shift is implying a corresponding transition from social scientists (sociologists, economists, psychologists, and so), whose expertise was chiefly supported by small data (i.e., statistics), to data analysts, whose expertise is substantiated by big data (Davies, 2017). As philosophers and theologians did not disappear with the Modern age, but changed their social role and legitimacy, the same is happening with "small data experts". They are no longer requested to provide knowledge, rather provide "analysis and solution of practical problems in specific situations" (Peters H.-P. , 2008, p. 132), which is inherently a role of policy advisors. This partly explains why experts are today involved by the global crisis of trust towards political institutions (Peters H. , 2013). Traditional experts – but not data analysts – are considered politically compromised by the public, their neutrality and objectivity are called into question, and, ultimately, they are not perceived trustworthy (Schäfer, 2016). They can hardly play the role of trustors of health risk communication because they are not completely credible (Koeser, 2015).

The main criterion to assess data trustworthiness is "veracity" (Demchenko, Grosso, Laat, & Membrey, 2013). Data veracity is a multifaceted notion, including the integrity of data and data linkage; data accuracy (Galletta, 2017) and authenticity; identifiable data source; reliable platforms and data repository (Yoon, 2014); data availability and timeliness; accountability and reputation of the data administrator/owner. Data is thus substantiated by their infrastructure, rather than by human expertise. Human factors, however, still play a role in knowledge validation, although quite different from the past. Empirical studies (Ljung & Wahlforss,, 2008) (Beldad, De Jong, & Steehouder, 2010) show that people search for, and rely on, positive feedback of their peers, rather than experts' opinion. Data sources and their owners serve as trustees, but data is validated by users, who play both the role of trustors and beneficiaries of online communication (Wang & Emurian, 2005). Online social validation relies on various quantitative, or semi-quantitative, criteria, including tweets, retweets, likes, impressions, visualizations, links, mentions, replies, sharing, following, queries submitted to web browsers, and so (Jessen & Jørgensen, 2012). In health risk communication, authorities' decisions and actions - at international, national, regional and local levels - are likely to be the most powerful influence of credibility of health messages. Audiences unavoidably compare health risk messages with health authority and professional actions. Consistency contributes to the success of plans for preventing or mitigating infectious outbreaks, building trust and credibility. Conversely, if actions and messages are inconsistent, health authorities and health professionals lose credibility. This situation is well illustrated by the case of the low vaccination rate against seasonal flu among health professionals, which is one of the main factors in the partial failure of flu vaccination campaigns at national and international levels. Moreover, loss of credibility prompts the birth and development of misinformation, disruptive communication, and, ultimately, social behaviours which facilitate the spread of infections. Credibility and consistency can still counteract misinformation, and they are the main weapon that we could use against manipulation of the public opinion.


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To illustrate the dynamic of digital trust COMPARE has developed a simple prototype model of digital trust, exploiting an open-source application. The model includes the following variables
Data volume and infrastructure (mining, sharing, processing, storing);
Users: data source, trustors, and the beneficiary (they are 3 functions, not 3 categories, each user is, in different moment or simultaneously, can be source, trustor, and beneficiary);
Misinformation, distrust, reluctance, trust, credibility
These variables are linked to each other by effectors, facilitating or inhibiting through an ongoing system of signal reverberation, trigged by previous nodes. The strength of the signals – either facilitating or inhibiting - depends on their relative numbers and the time needed by each signal to reach its target, say the distance between nodes of the graph. The model does not aim to unravel hidden relationships between variables or to provide a forecast of the system behaviour, given that it has not been built by using quantitative variables. It is rather a qualitative instrument aiming at representing graphically the likely effects – according to the scientific literature – of manipulating the main variables of digital trust. We start from an ideal system, where variables are all zeroed, except DATA, which is 100. We have tested 6 elementary scenarios,
1. - At the injection of misinformation; reluctance peaks, distrust cycles, misinformation cycles; credibility and trust are permanently inhabited, and the overall data flow is impaired but not totally prevented ; the model does not reach a steady-state, it remains quite unstable and tends to cycle;
2. - As growing distrust; it is the most destructive scenario at all. The system seems unable to react effectively and, although several cycles alternate, it tends to reach a state of equilibrium in which distrust, reluctance, and misinformation dominate the overall scenario;
3. - As growing reluctance; this scenario is very close to the previous one but less dramatic. It does not reach a negative state of equilibrium, and it does not totally inhibit the growth of data flow and exchange, and the (relative) growth of trust;
4. - In this scenario trustors increase in strength; it is the most positive scenario, the system reaches a steady-state in which all variables peak, except the three negative ones, reluctance, distrust, and misinformation, which are prevented growing, although they initially cycle;
5. - Growing credibility produces effects very close to the strengthening trustors, although the system remains slightly unstable and tends to cycle long term
6. - in this scenario, additional trust is injected in the system; it is, obviously, a positive scenario but less positive than one could expect. The system cannot reach a steady-state but tends to cycle; there are some difficulties in the growth of volume of data and misinformation cannot be completely prevented
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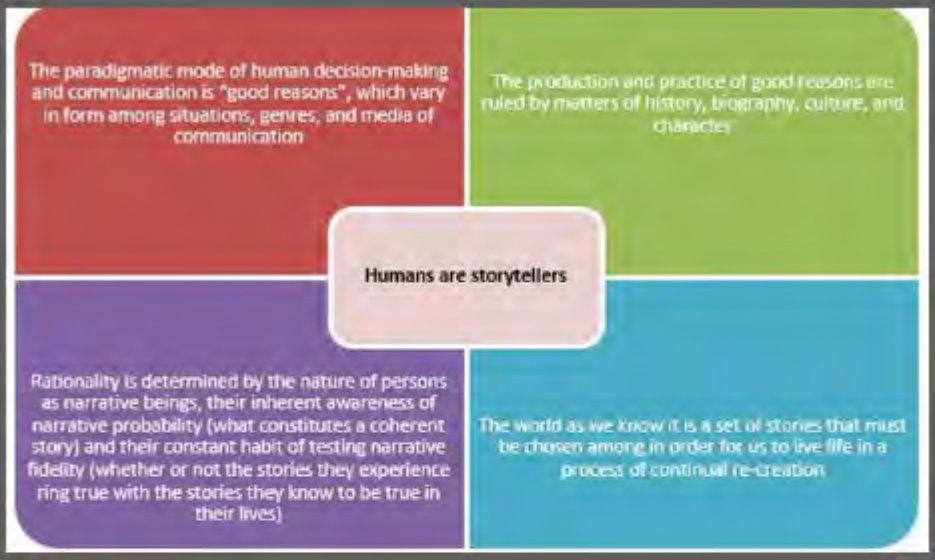


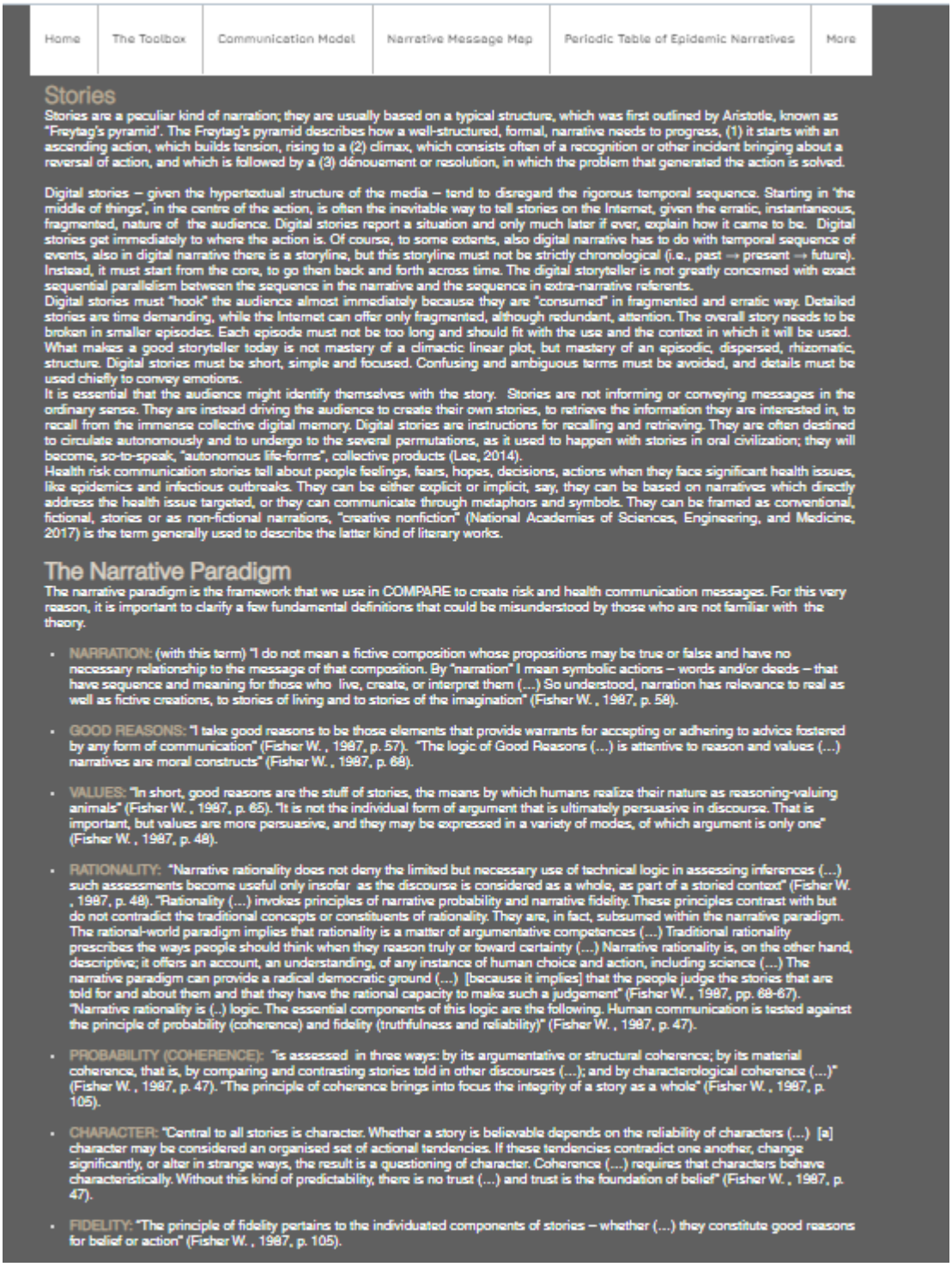
Introduction

"*Narrative is one of the most fundamental and powerful elements of human cognition. We are, as a species, storytellers, and the stories we tell—either personal ones that shape our perception of ourselves or collective ones that shape social interactions—are an enduring part of human behaviour*" (Rajeski, 2005).

The so-called 'narrative paradigm' was proposed in the early 1980s by Walter Fisher (Fisher W. R., 1985). Narrative – Fisher argues - is a primary meaning-making tool in culture, the mediator between individual sense-making and collective beliefs, canons, and perspectives. According to Fisher, we experience and understand life as a series of ongoing narratives. By this, he means not so much that we always tell, or listen to, stories, rather he argues that narrative provides the conceptual frame that accounts for the whole human communication. Logical arguments, mathematical formulae, musical compositions, paintings, novels, performances, are all perceived by human beings as though they were narratives, although each one of these languages has its own scope, its own structure.

There is a spectrum of explicit and implicit narratives in cultures, ranging from national founding myths to the highly personal proto-narratives of our night dreams. "Behind even the abstractions of science – writes Walter Ong - there lies narrative of the observations on the basis of which the abstractions have been formulated. Students in a science laboratory have to 'write up' experiments, which is to say, they have to narrate what they did and what happened when they did it. From the narration, certain generalizations or abstract conclusions can be formulated. Behind proverbs and aphorisms and philosophical speculation and religious ritual lies the memory of human experience strung out in time and subject to narrative treatment. Lyric poetry implies a series of events in which the voice in the lyric is embedded or to which it is related. All of this is to say that knowledge and discourse come out of human experience and that the elemental way to process human experience verbally is to give an account of it more or less as it really comes into being and exists, embedded in the flow of time. Developing a storyline is a way of dealing with this flow" (Ong, 1982, p. 138).

Nassim Nicholas Taleb (Taleb, 2007) developed an intriguing theory for explaining the narrative paradigm. His theory is especially relevant to communication about highly unpredictable and uncertain events such as infectious outbreaks. In a nutshell, Taleb argues that narrativity and causality – that is to say, the tendency to shape communication into storylines, and chaining events to each other through a series of causes and effects – are two sides of a coin. To Taleb, our natural repugnance for randomness is one with our tendency to see stories everywhere and to perceive the world as though it were a collection of stories. We are storytellers – he argues - because we are cause-seekers, and vice versa. Humans continuously search for causal explanations, which are ultimately stories. Taleb provides a nice narrative to explain this theory; he writes "We (...) have a hunger for rules because we need to reduce the dimension of matters so they can get into our heads (...) The more random information is, the greater the dimensionality, and thus the more difficult to summarize. The more you summarize, the more order you put in, the less randomness. Hence the same condition that makes us simplify pushes us to think that the world is less random than it actually is (...) Both the artistic and scientific enterprises are the product of our need to reduce dimensions and inflict some order on things. Think of the world around you, laden with trillions of details. Try to describe it and you will find yourself tempted to weave a thread into what you are saying. A novel, a story, a myth, or a tale, all have the same function: they spare us from the complexity of the world and shield us from its randomness. Myths impart order to the disorder of human perception and the perceived 'chaos of human experience' (...) To view the potency of narrative, consider the following statement: 'The king died, and the queen died'. Compare it to 'The king died, and then the queen died of grief'. This exercise, presented by the novelist E. M. Forster, shows the distinction between mere succession of information and a plot. But notice the hitch here: although we added information to the second statement, we effectively reduced the dimension of the total. The second sentence is, in a way, much lighter to carry and easier to remember; we now have one single piece of information in place of two. As we can remember it with less effort, we can also sell it to others, that is, market it better as a packaged idea. This, in a nutshell, is the definition and function of a narrative" (Taleb, 2007, pp. 69-70).



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Stories

Stories are a peculiar kind of narration; they are usually based on a typical structure, which was first outlined by Aristotle, known as 'Freytag's pyramid'. The Freytag's pyramid describes how a well-structured, formal, narrative needs to progress, (1) it starts with an ascending action, which builds tension, rising to a (2) climax, which consists often of a recognition or other incident bringing about a reversal of action, and which is followed by a (3) dénouement or resolution, in which the problem that generated the action is solved.

Digital stories – given the hypertextual structure of the media – tend to disregard the rigorous temporal sequence. Starting in 'the middle of things', in the centre of the action, is often the inevitable way to tell stories on the Internet, given the erratic, instantaneous, fragmented, nature of the audience. Digital stories report a situation and only much later if ever, explain how it came to be. Digital stories get immediately to where the action is. Of course, to some extents, also digital narrative has to do with temporal sequence of events, also in digital narrative there is a storyline, but this storyline must not be strictly chronological (i.e., past → present → future). Instead, it must start from the core, to go then back and forth across time. The digital storyteller is not greatly concerned with exact sequential parallelism between the sequence in the narrative and the sequence in extra-narrative referents.
Digital stories must "hook" the audience almost immediately because they are "consumed" in fragmented and erratic way. Detailed stories are time demanding, while the Internet can offer only fragmented, although redundant, attention. The overall story needs to be broken in smaller episodes. Each episode must not be too long and should fit with the use and the context in which it will be used. What makes a good storyteller today is not mastery of a climactic linear plot, but mastery of an episodic, dispersed, rhizomatic, structure. Digital stories must be short, simple and focused. Confusing and ambiguous terms must be avoided, and details must be used chiefly to convey emotions.
It is essential that the audience might identify themselves with the story. Stories are not informing or conveying messages in the ordinary sense. They are instead driving the audience to create their own stories, to retrieve the information they are interested in, to recall from the immense collective digital memory. Digital stories are instructions for recalling and retrieving. They are often destined to circulate autonomously and to undergo to the several permutations, as it used to happen with stories in oral civilization; they will become, so-to-speak, "autonomous life-forms", collective products (Lee, 2014).
Health risk communication stories tell about people feelings, fears, hopes, decisions, actions when they face significant health issues, like epidemics and infectious outbreaks. They can be either explicit or implicit, say, they can be based on narratives which directly address the health issue targeted, or they can communicate through metaphors and symbols. They can be framed as conventional, fictional, stories or as non-fictional narrations, "creative nonfiction" (National Academies of Sciences, Engineering, and Medicine, 2017) is the term generally used to describe the latter kind of literary works.

The Narrative Paradigm

The narrative paradigm is the framework that we use in COMPARE to create risk and health communication messages. For this very reason, it is important to clarify a few fundamental definitions that could be misunderstood by those who are not familiar with the theory.

- NARRATION: (with this term) "I do not mean a fictive composition whose propositions may be true or false and have no necessary relationship to the message of that composition. By "narration" I mean symbolic actions – words and/or deeds – that have sequence and meaning for those who live, create, or interpret them (...) So understood, narration has relevance to real as well as fictive creations, to stories of living and to stories of the imagination" (Fisher W. , 1987, p. 58).

- GOOD REASONS: "I take good reasons to be those elements that provide warrants for accepting or adhering to advice fostered by any form of communication" (Fisher W. , 1987, p. 57). "The logic of Good Reasons (...) is attentive to reason and values (...) narratives are moral constructs" (Fisher W. , 1987, p. 68).

- VALUES: "In short, good reasons are the stuff of stories, the means by which humans realize their nature as reasoning-valuing animals" (Fisher W. , 1987, p. 65). "It is not the individual form of argument that is ultimately persuasive in discourse. That is important, but values are more persuasive, and they may be expressed in a variety of modes, of which argument is only one" (Fisher W. , 1987, p. 48).

- RATIONALITY: "Narrative rationality does not deny the limited but necessary use of technical logic in assessing inferences (...) such assessments become useful only insofar as the discourse is considered as a whole, as part of a storied context" (Fisher W. , 1987, p. 48). "Rationality (...) invokes principles of narrative probability and narrative fidelity. These principles contrast with but do not contradict the traditional concepts or constituents of rationality. They are, in fact, subsumed within the narrative paradigm. The rational-world paradigm implies that rationality is a matter of argumentative competences (...) Traditional rationality prescribes the ways people should think when they reason truly or toward certainty (...) Narrative rationality is, on the other hand, descriptive; it offers an account, an understanding, of any instance of human choice and action, including science (...) The narrative paradigm can provide a radical democratic ground (...) [because it implies] that the people judge the stories that are told for and about them and that they have the rational capacity to make such a judgement" (Fisher W. , 1987, pp. 68-67). "Narrative rationality is (..) logic. The essential components of this logic are the following. Human communication is tested against the principle of probability (coherence) and fidelity (truthfulness and reliability)" (Fisher W. , 1987, p. 47).

- PROBABILITY (COHERENCE): "is assessed in three ways: by its argumentative or structural coherence; by its material coherence, that is, by comparing and contrasting stories told in other discourses (...); and by characterological coherence (...)" (Fisher W. , 1987, p. 47). "The principle of coherence brings into focus the integrity of a story as a whole" (Fisher W. , 1987, p. 105).

- CHARACTER: "Central to all stories is character. Whether a story is believable depends on the reliability of characters (...) [a] character may be considered an organised set of actional tendencies. If these tendencies contradict one another, change significantly, or alter in strange ways, the result is a questioning of character. Coherence (...) requires that characters behave characteristically. Without this kind of predictability, there is no trust (...) and trust is the foundation of belief" (Fisher W. , 1987, p. 47).

- FIDELITY: "The principle of fidelity pertains to the individuated components of stories – whether (...) they constitute good reasons for belief or action" (Fisher W. , 1987, p. 105).

The principle of fidelity is crucial to Fisher's theory, and he discusses it in detail, splitting it into five components,

- FACTS: the first question posed by traditional logic is whether a message is backed by facts, which is usually solved by "consensus or reliable, competent, witnesses" (Fisher W. , 1987, p. 108). Narrative rationality implies, however, that people do not completely distinguish between facts and values; values are facts to human eyes. Consequently – behind the question about facts – people pose always a question about what values are implicitly or explicitly embedded in the message.
- RELEVANCE: the second question logically posed is about claims of relevance, whether facts embedded in the message are truly relevant. Fisher argues that unavoidably we ask also whether associated values are truly appropriate to the nature of the message.
- CONSEQUENCE: the third question concerns the effects that the application of the values would produce, notably on them who are directly affected.
- CONSISTENCY: Fisher argues that values need to be validated by testing their consistency with our values and experience, and values and experience of esteemed others.
- TRANSCENDENCY: the fifth parameter that we use to assess fidelity is whether, according to our cultural perspective, values embedded in a message are ultimate values, say, whether they transcend the context.

Narrative for Health Communication

According to the Narrative Paradigm, all messages are narrative, be implicitly or explicitly. Communication is always narrative both because the sender cannot avoid including narrative subtexts in any message he produces, and because the receiver cannot avoid interpreting the message through narrative schemes. Both sender and receiver are not necessarily aware of the narrative nature of their communication, because they both expect that narratives are recognisable stories, and they do not consider implicit narratives, which are instead most of the narratives embedded in communication.

Communication in the digital era is ruled by the same fundamental laws which ruled oral communication. As in oral cultures, also in the digital culture, people want stories, they want someone who helps them to make sense of events such as an outbreak; they need emotional communication rather than mere information. The goal of effective narrative communication in the digital world is to drive the audience to search for the proper information and process it by themselves. The convincing power of information found by yourself is unparalleled. In the digital world, people bypass any form of intermediation; they don't want experts to educate them, they think to be able to find the necessary information by themselves; instead, they ask for sense and sense-making stories.

Two CDC campaigns are good examples of a narrative approach to health risk communication, the "Zika Communication Toolkits" and the "Zombie Pandemic Preparedness".


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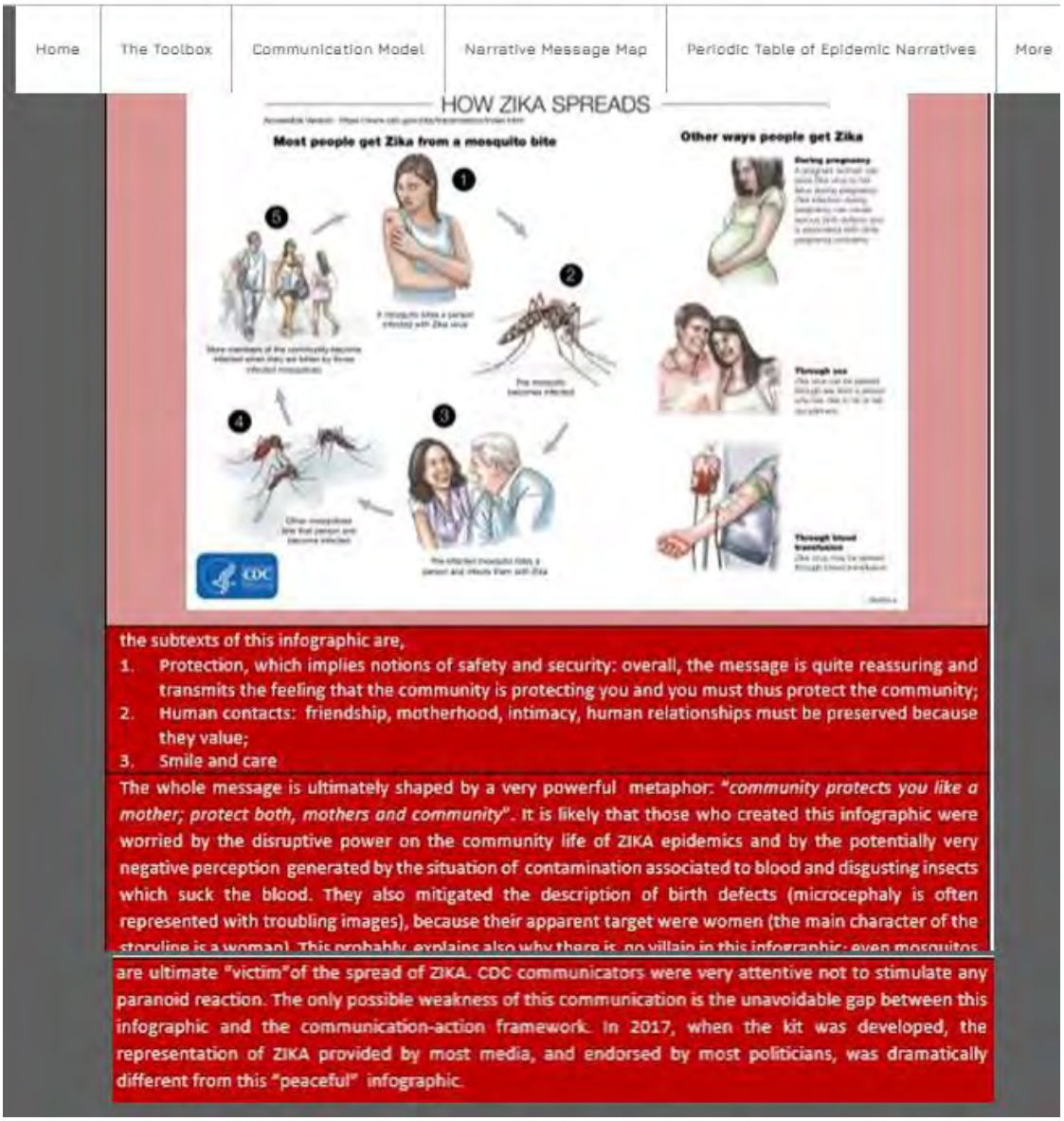
The infographic on *Protect Your Family and Community: How Zika Spreads* is a very well organised narrative communication, the text provides some basic pieces of information, but what really matters is the overall graphic. Note the following,
(1) The predominance of the main message, which is not informative but purely instructional *Protect Your Family and Community*; also, the second message, *How Zika Spreads*, is instructional because it provides the recipient with instructions about how s/he must interpret the leaflet, say, *"now, we want to tell you how Zika spreads"*;
(2) All pictures, but three, represent "collective"situations (also the one in which there is the pregnant mother because of the newborn), this reinforces the idea of disease spreading; also, pay attention that spreading hardly concern anonymous crowds rather the family (main message), friends (picture 3), the newborn (first picture in the right column), the partner (second picture in the right column);
(3) The three pictures which do not represent people together are directly associated to the idea of disease: (a) the infected woman; (b) the infected mosquito; (c) the person who is undergoing to blood transfusion;
(4) Pictures are organised on the page in order to suggest a storyline; each recipient is left free to create his own story, but CDC provides the master story, which could be summarised as such
i. an infected person unintentionally infects a mosquito; she is troubled by the bite;
ii. two relaxed friends are infected by the mosquito and, in turn, they infect other mosquitos, which infect the community
iii. a pregnant woman is tenderly thinking of her baby; she ignores she could experience pregnancy problems (note that the risk of birth defect is only vaguely mentioned)
iv. a couple of sexual partners are in love, although they suspended intimate contacts to avoid spreading infection (the text tells a different story, but what matters is the picture)
v. someone has been hospitalised (the text describes someone who gets ZIKA because of blood transfusion, but the picture tells a different story, say, someone who is diseased because of ZIKA)



the subtexts of this infographic are,

1. Protection, which implies notions of safety and security: overall, the message is quite reassuring and transmits the feeling that the community is protecting you and you must thus protect the community;
2. Human contacts: friendship, motherhood, intimacy, human relationships must be preserved because they value;
3. Smile and care

The whole message is ultimately shaped by a very powerful metaphor: "*community protects you like a mother; protect both, mothers and community*". It is likely that those who created this infographic were worried by the disruptive power on the community life of ZIKA epidemics and by the potentially very negative perception generated by the situation of contamination associated to blood and disgusting insects which suck the blood. They also mitigated the description of birth defects (microcephaly is often represented with troubling images), because their apparent target were women (the main character of the storyline is a woman). This probably explains also why there is no villain in this infographic: even mosquitos are ultimate "victim" of the spread of ZIKA. CDC communicators were very attentive not to stimulate any paranoid reaction. The only possible weakness of this communication is the unavoidable gap between this infographic and the communication-action framework. In 2017, when the kit was developed, the representation of ZIKA provided by most media, and endorsed by most politicians, was dramatically different from this "peaceful" infographic.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The Zombie Pandemic Preparedness Campaign
Chiefly addressing teenagers, the 2011 CDC Zombie Pandemic Campaign explicitly aimed to demonstrate the importance of preparedness. The zombie virus turned out being a "highly mutated" form of flu, and the whole story was a transparent allegory of flu pandemic. The campaign products were several, covering various aspects, starting with an opening story, which was a graphic novel. The explicit message, "Be Prepared", was structured in three key messages "Get a Kit", "Make a plan", "Be prepared". The overall frame was the contamination frame, and all materials were rigorously coherent with such a frame. In the end, we discover that the story was only a bad dream, caused by a scaring TV movie. So, the real message behind the actual words has little to do with preparedness; rather, it addresses doubts, perplexities and mistrust raised by 2009 flu pandemic campaign. This campaigns aimed to convey the message that even if the next, deadly, flu pandemic were only a nightmare, it would make sense to prepare oneself because "who knows?". The true goal of the Zombie Pandemic Preparedness Campaign was thus to restore trust and to align health institutions and communicators with teen-ager audience.
Zombie Preparedness Products
Zombie Preparedness Blog
There are all kinds of emergencies out there that we can prepare for.
Take a zombie apocalypse for example.
Zombie Preparedness for Educators
Looking to teach preparedness in the classroom?
We've got full lesson plans and activities for you to use or adapt with your students.
Zombie Preparedness Poster
It can be tough to get people thinking about emergency preparedness before disaster strikes.
We've created these zombie posters to spark some attention and get people involved before it's too late.
Download the pdf to print copies for your office or home. English (PDF - 27 MB) | Español (PDF - 2 MB)
Zombie Preparedness Graphic Novel
Looking for an entertaining way to introduce emergency preparedness?
Check out our graphic novella which uses the idea of a zombie apocalypse to demonstrate the importance of preparedness.
Included is a personal preparedness checklist so you can take action once you're done reading.
Social Media/Online
Check out our Zombie Social Media page where you can find badges and widgets for your own site, links to our blog, content syndication, and zombie e-cards.


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The Zombie Pandemic Preparedness Campaign
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BE PREPARED
ALL-HAZARDS EMERGENCY KIT

Kairos

Kairos is an ancient Greek word that means "the right moment" or "the opportune." The two meanings of the word apparently come from two different sources. In archery, it refers to an opening, or "opportunity" or, more precisely, a long tunnel-like aperture through which the archer's arrow has to pass. Successful passage of a kairos requires, therefore, that the archer's arrow be fired not only accurately but with enough power for it to penetrate. The second meaning of kairos traces to the art of weaving. There it is "the critical time" when the weaver must draw the yarn through a gap that momentarily opens in the warp of the cloth being woven. Putting the two meanings together, one might understand kairos to refer to a passing instant when an opening appears which must be driven through with force if success is to be achieved.

Gorgias of Leontini

Gorgias of Leontini (c. 483-376 BC) puts persuasion and persuasive communication at the hearth of his philosophical system. Gorgias' philosophical approach is surprisingly close to some aspects of the General Definition of Information (GDI) (0). According to Gorgias, 1) no- thing exists; and 2) even if something exists, nothing can be known about it; and 3) even if something can be known about it, knowledge cannot be communicated to others; finally, 4) even if it can be communicated, it cannot be understood. What is then communication? Anything but persuasion, Gorgias answers. Gorgias argues that human mind is intrinsically passive. This passivity is manifested by two processes: the receptiveness to impressions coming from senses and the openness to the language. Persuasion, peiJw, is charm and seduction, it is not communication. According to Gorgias persuasion is made of three elements: an external influence, that he calls the powerful speech ; an internal disposition, that he calls the opinion (doxa); and the right moment, that he calls the opportune time (kairos).

Opinion (doxa) is what we would call "uncertainty", it is an opaque and ambiguous state of half-knowledge, which prevents both complete ignorance and positive knowledge, both unquestionable, although in opposite senses. Doxa, opinion, indicates the mental confusion that arises because one cannot choose between alternatives, and decision-making capacity is paralyzed. Without opinion, there would not be persuasion. Humans - Gorgias argues - are in an endless search for points of anchorage, for certainties to ground their choices and, eventually, their life. Yet, ironically enough, the sole "certainty" that they achieve is the illusion, apath, created by powerful symbols, the logoV dunasthV, literally the powerful speech. To Gorgias, the essence of a powerful speech is neither in rational arguments nor in emotional appeals (although they can be both used), rather it is in its music-like structure. Basically, the powerful speech is artistic narrative, coded in several ways (e.g., theatrical, poetical, musical, rhetorical, and so), according to the circumstances and the needs of the moment. Sometimes it can be explicit, more often it is disguised under the appearances of legal, political, scientific, philosophical, and so, arguments. The third, essential, element to persuade – concludes Gorgias - is indeed the right moment according to the circumstances, the time opportune, kairoV. Persuasion reaches its target only if it hits the hesitant audience at the time opportune. Kairos is like "timing", tempo, in music; it is both the relative pace of a piece, and the ability to synchronise it to an ensemble, intuitively searching for the best duration of sounds and pauses in relation to other sounds and pauses, to the overall context, and the audience. Kairos is the genius of the moment. Being able to "feel" it, is paramount to military, communicators, musicians, comedians, performers, political leaders, managers, and so. In a word, it is what makes decision making effective, be it playing a sound, uttering a word, or giving a command (Sipiora and Baumlin 2002).

Aristotle

According to Aristotle, effective human communication is based on what he called "rhetorical syllogism", say, an argument which is grounded on probable premises, rather than on incontrovertible, positive, premises (as scientific arguments do). Although rational arguments and declarative statements should be included in effective human communication, they are not its essence, because communication's goal is not scientific knowledge. Communicators, Aristotle pragmatically argues, are not expected to discover, or communicate the truth, rather to convince the audience. He distinguishes between

1) deliberative speeches, which concern decisions on policy issues, and aim to convince about a political choice;
2) judicial speeches, which concern decisions into a court, and aim to convince about the guilt of innocence of a defendant;
3) moral speeches, which concern education, and aim to convince about appropriate behaviours and life styles;

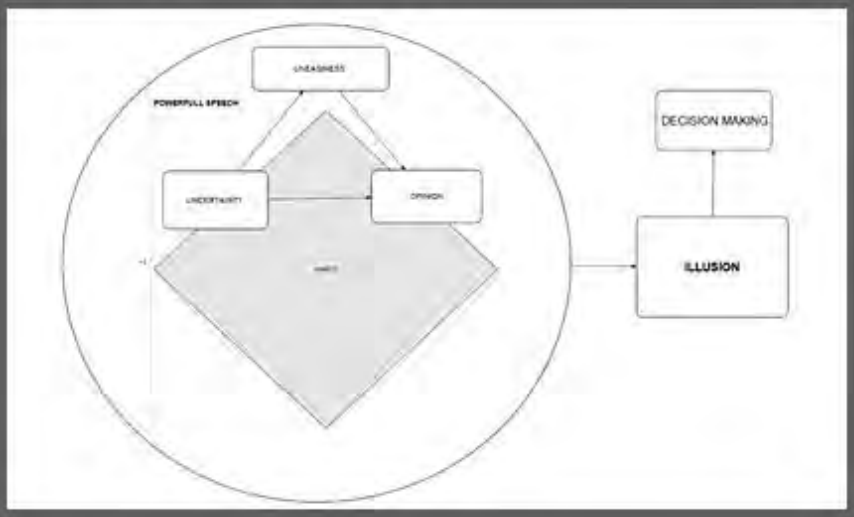
A persuasive speech should respect an internal balance, comprising four distinct parts, 1) the opening; 2) the narrative of facts; 3) the evidence of the argument; and 4) the conclusions. The first and the last parts of this speech must be emotionally evocative, touching the soul of the listener, while the two central parts should use empirical evidence and rational arguments. Aristotle's model dominated communication theories till to the modern epoch.

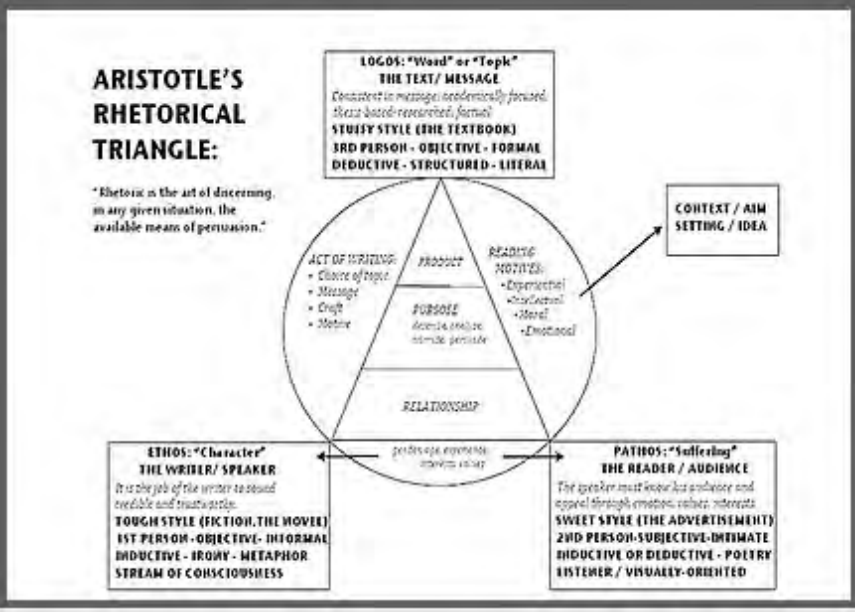
The so-called Aristotle's rhetoric triangle synthesises Aristotle's analysis of persuasive techniques. He argues that all persuasive strategies result from a mix of only three elements, logos, pathos, and ethos.

Logos is the declarative argument, based on facts and logic. It could be either true or false, but it cannot be in between (e.g., either vaccines cause autism or not). It is however worth noting that here Aristotle includes the logos among persuasive techniques, this suggests a more in-depth reading of Aristotle's text. In the context of rhetoric, Aristotle is not interested in the logos as a scientific tool for discovering the truth, rather in its persuasive power. In other words, what Aristotle is speaking of is the deceptive power of the logos. When truth is cleverly used, it could become one of the powerful deceiving techniques. Iago is "honest", strictly speaking he never lies to Othello, he succeeds in misleading the Moor by telling the "truth".

Pathos is the appeal to audience's emotions. It could be achieved through many different means – most of them theatrical in nature or based on arts and music – what matters is their capacity for evoking emotional reactions. To Aristotle, emotions are connected to persuasion because they blur mind's clarity and drive to believe in what one desires or fears rather than in what is true or false. Emotions are the inner reason why the logos itself could be used as a persuasive technique. A partial truth can be used to evoke emotions that drive to deceive themselves.

Ethos is the speaker or writer's character, credibility, and authority. Only a trusted communicator is believed, no matter whether she masters logos and pathos. This implies that trust and authority building should be always the first step for an effective persuasive communication. It is worth noting that Aristotle includes in this aspect also stylistic elements, this means that communication is trusted as far as it is shaped in the opportune stylistic form (e.g., the alert for an outbreak could be twitted, but it would be much less credible disseminated through a video call on Snapchat)





The Physical Dimension of Communication

As per the physical dimension of the communication environment, one should consider communication competencies, target audiences, physical infrastructure, and languages.

Communication competencies include

- Public health officers
- Public health professionals
- Health personnel involved in response to an outbreak (including medical and veterinary doctors, nurses, laboratory staff)
- Non-health public officers involved in response to an outbreak (administrative staff, law enforcement and police, local authorities, school authorities)
- Institutional health communicators (crisis communicators, health agency spokespersons, journalists hired by the health agency, other relevant authority spokespersons)
- Informal staff – volunteers, NGOs, religious charities - involved in response to an outbreak
- Medical journalists, Investigative journalists and writers
- Professional bloggers and other professional online commentators (e.g., professional YouTube video makers, Instagram Lifestyle publishers, etc.)

Each specific, actual, situation is made up of a mosaic of these competencies, which mix each time in unique way. Public health officers and professional communicators (spokespersons and journalists hired by the health agency) must balance the use of different competencies, such as scientific knowledge, epidemiological information, acquaintance with journalists, familiarity with social media, in order to communicate the intended message(s) to the target audience. One of the main keys to successful communication today is to remember that, in the digital public sphere, time and space are condensed, and everything happens synchronously and ubiquitously. Messages must thus be thought as though they were focused on a specific audience and, simultaneously, as though they were universal. Health authorities can use all communicational competencies to implement their communication strategy. Different competencies, whether smartly employed in crisis, are an essential enabling activity that facilitates development of an effective health risk communication.

A target audience is a group chosen for authority. They include conventional stakeholders and digital audience. We have already discussed them in detail. In general, the integration of communication competences is most effective when employed against precisely selected targets to achieve clearly defined objectives (e.g., professional bloggers are employed to convince millennials to vaccinate against HPV).

Physical infrastructure is made of things, physical networks, and places that allow communicating. The development of digital technology is making physical infrastructure less and less important. Today, one could communicate globally without the need to possess sophisticated instruments or specific places from where to broadcast. This must always be considered by health communicators (e.g., a local press conference, an informal conversation, can easily become global events, it is enough that someone captures a video and stream it). Incidentally, this is also the reason why we do not consider in our analysis the standard distinction between different types of health communication (e.g., press conference, face to face, interview, informal conversation, TV and Radio broadcast, newspaper article, etc.). Such a distinction made sense in the past. Today, any type of communication can seamlessly turn into another type. One can have a focus and a target, but the message should be shaped in such a way not to be misunderstood if framework conditions change. In the digital sphere, there is no longer a context but always a hypertext.

CONTEXT	HYPERTEXT
Frontal	Immersive
Causal	Apparent Randomness / Serendipity
Sequential	Simultaneous
Fragmented	Integrated
Centralised	Decentralised
Rational	Emergent
Abstracted	Simulated
Analysis	Pattern-recognition
Representation	Participation / interactivity
Historical	All-at-once
Specific / singular	Interconnected

Finally, the physical dimension of the communication framework also includes languages, say, the overall system of symbolic representations of a given social group or community. Verbal and non-verbal signs, including words, are real entities, belonging to the physical world, and they should be considered as such.

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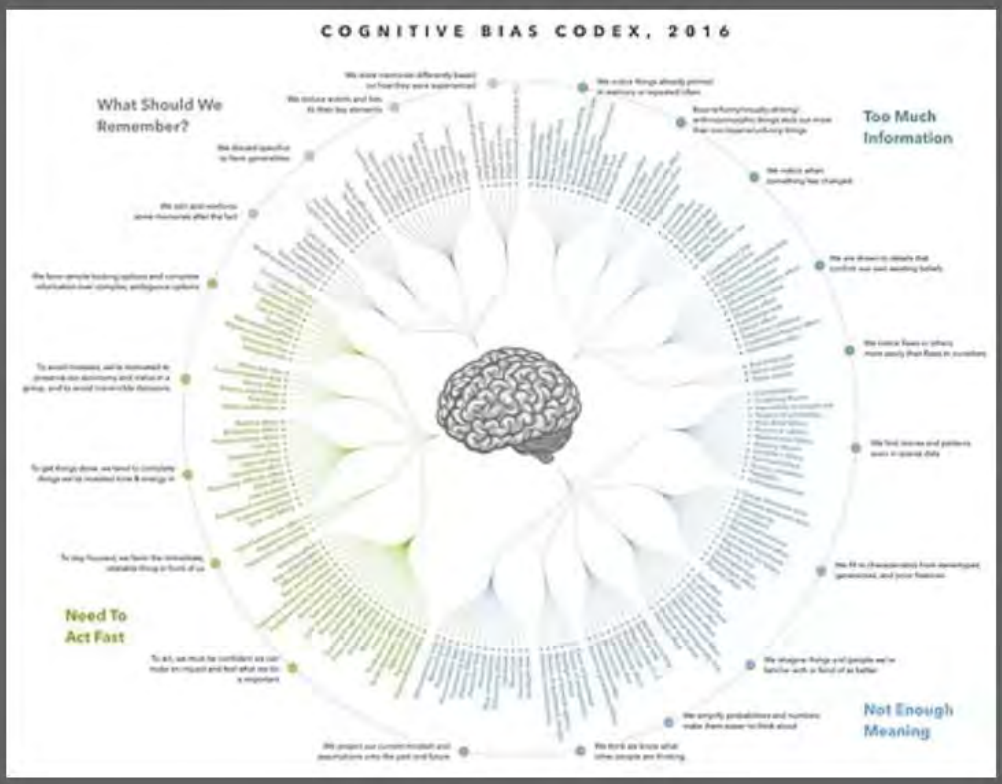
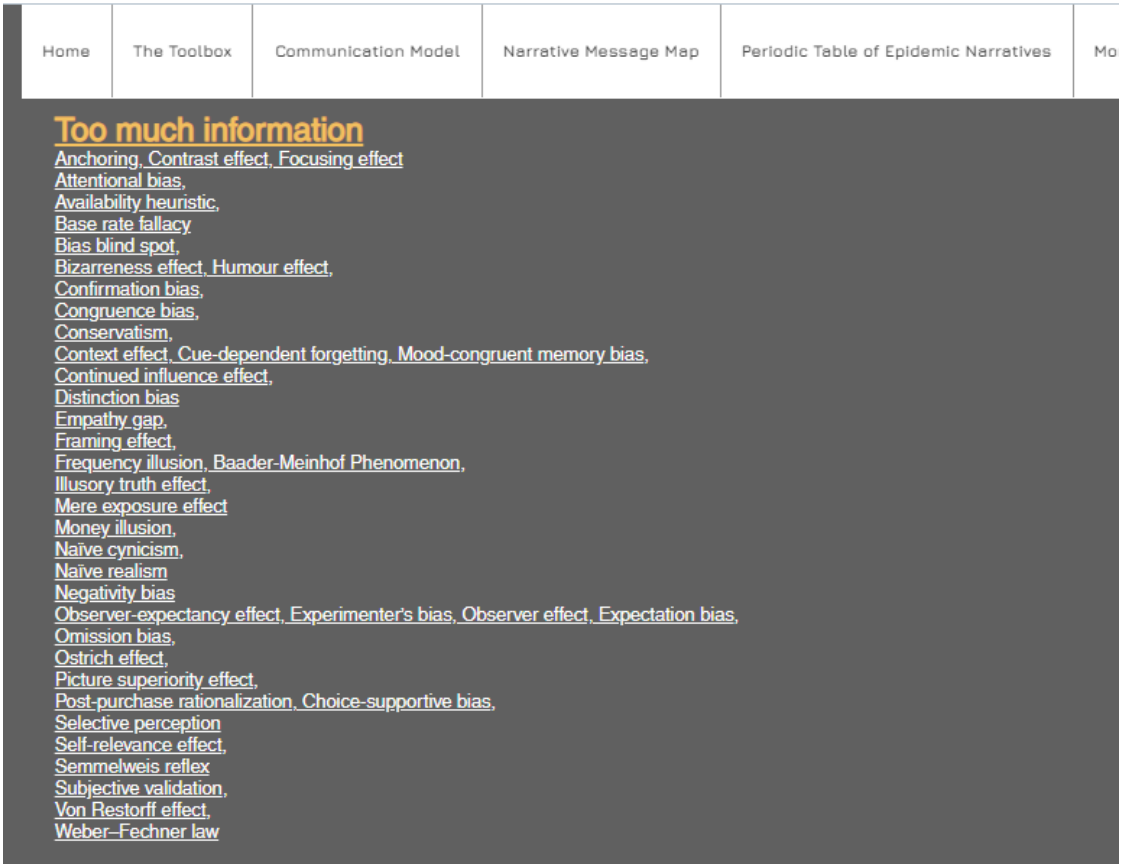
The Mental Dimension of Communication

The mental dimension concerns the cognitive conditions for communication. They include (1) cultural forms though which a given social groups or community expresses itself (e.g., rituals, ceremonies, traditions); (2) collective narratives and myths; (3) conscious beliefs, religions, ideologies, and the social unconscious. They require a separate document. Now we will consider only some mental predispositions of communicators and target audience.
We will consider the main cognitive biases that could affect health communicators. There are several lists of cognitive biases; they are substantially equivalent. We use the classification in four groups, originally proposed by Buster Benson (Benson, 2016).

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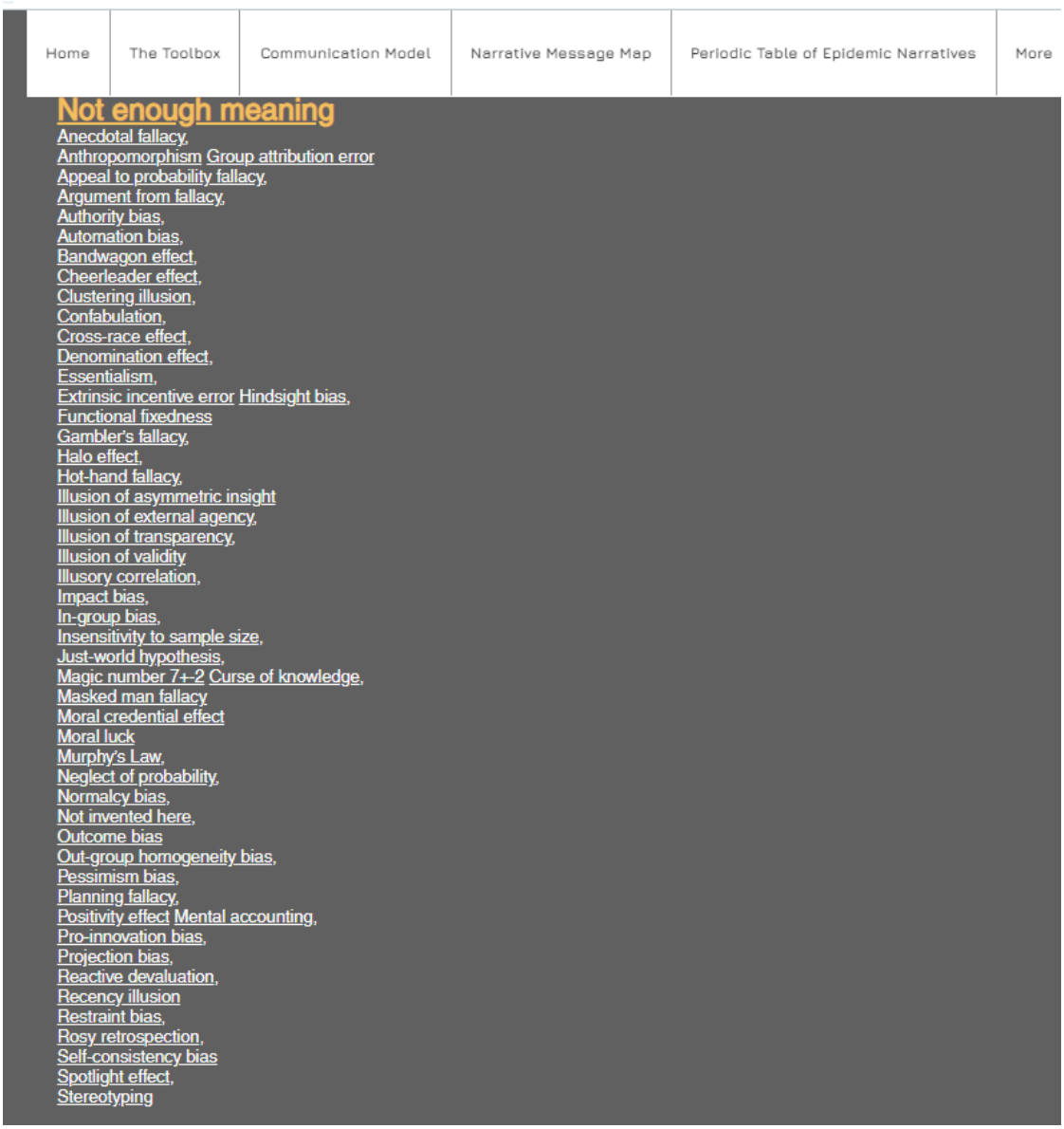
Too much information
Anchoring, Contrast effect, Focusing effect
Attentional bias,
Availability heuristic,
Base rate fallacy
Bias blind spot,
Bizarreness effect, Humour effect,
Confirmation bias,
Congruence bias,
Conservatism,
Context effect, Cue-dependent forgetting, Mood-congruent memory bias,
Continued influence effect,
Distinction bias
Empathy gap,
Framing effect,
Frequency illusion, Baader-Meinhof Phenomenon,
Illusory truth effect,
Mere exposure effect
Money illusion,
Naïve cynicism,
Naïve realism
Negativity bias
Observer-expectancy effect, Experimenter's bias, Observer effect, Expectation bias,
Omission bias,
Ostrich effect,
Picture superiority effect,
Post-purchase rationalization, Choice-supportive bias,
Selective perception
Self-relevance effect,
Semmelweis reflex
Subjective validation,
Von Restorff effect,
Weber–Fechner law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Anthropomorphism Group attribution error
Appeal to probability fallacy,
Argument from fallacy,
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Cheerleader effect,
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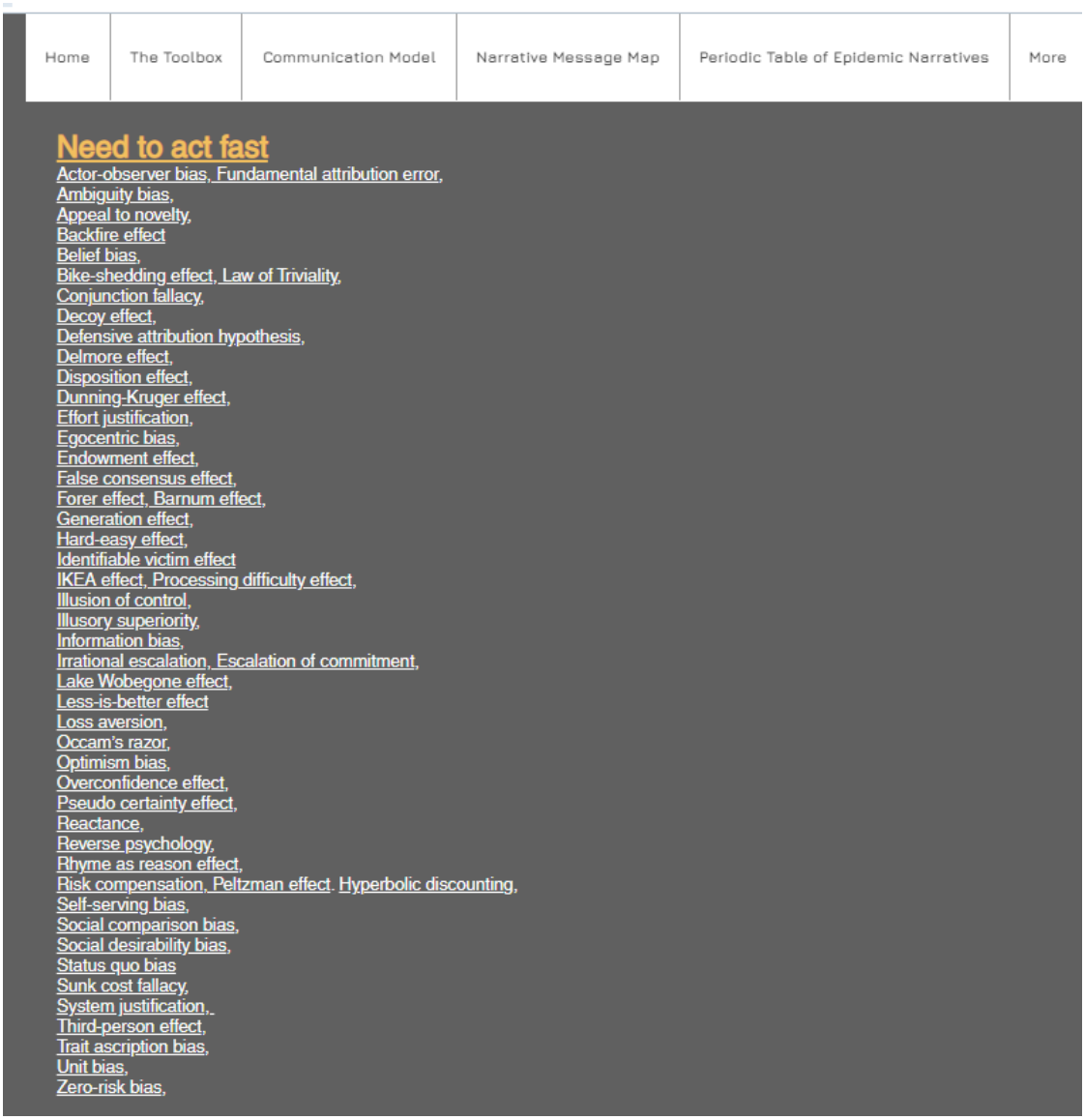
Confabulation,
Cross-race effect,
Denomination effect,
Essentialism,
Extrinsic incentive error Hindsight bias,
Functional fixedness
Gambler's fallacy,
Halo effect,
Hot-hand fallacy,
Illusion of asymmetric insight
Illusion of external agency,
Illusion of transparency,
Illusion of validity
Illusory correlation,
Impact bias,
In-group bias,
Insensitivity to sample size,
Just-world hypothesis,
Magic number 7+-2 Curse of knowledge,
Masked man fallacy
Moral credential effect
Moral luck
Murphy's Law,
Neglect of probability,
Normalcy bias,
Not invented here,
Outcome bias
Out-group homogeneity bias,
Pessimism bias,
Planning fallacy,
Positivity effect Mental accounting,
Pro-innovation bias,
Projection bias,
Reactive devaluation,
Recency illusion
Restraint bias,
Rosy retrospection,
Self-consistency bias
Spotlight effect,
Stereotyping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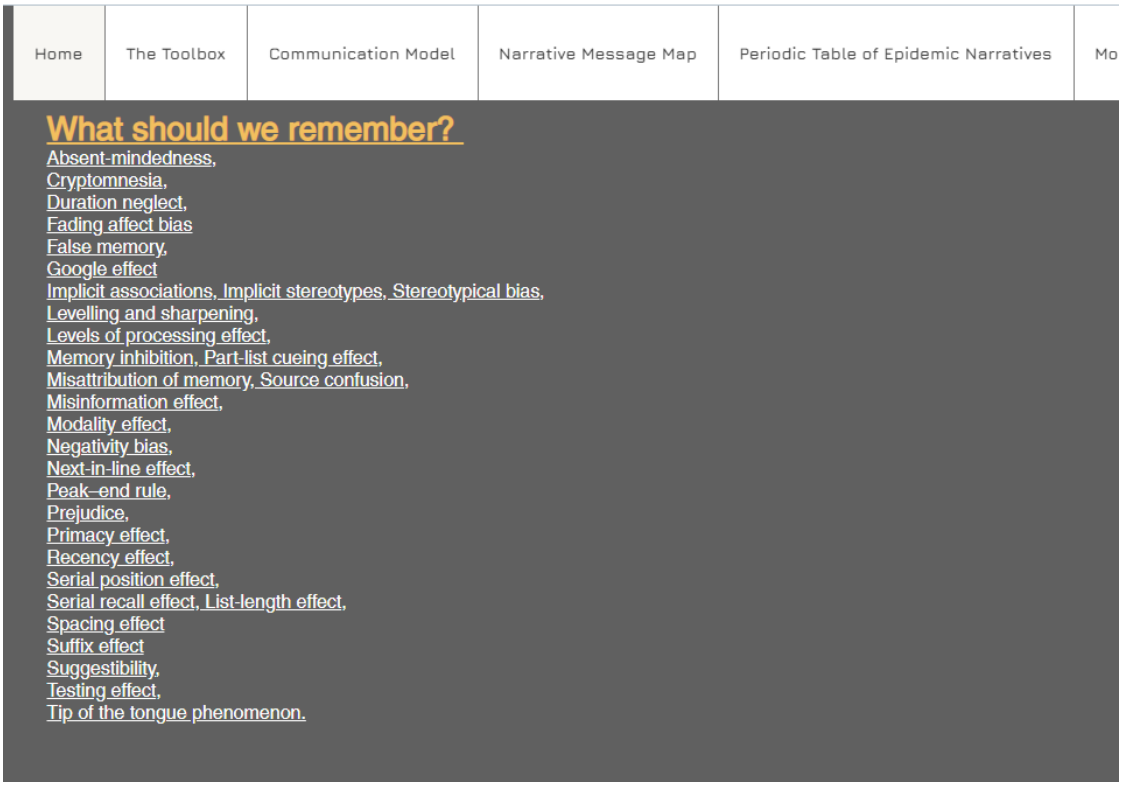
Need to act fast
Actor-observer bias, Fundamental attribution error,
Ambiguity bias,
Appeal to novelty,
Backfire effect
Belief bias,
Bike-shedding effect, Law of Triviality,
Conjunction fallacy,
Decoy effect,
Defensive attribution hypothesis,
Delmore effect,
Disposition effect,
Dunning-Kruger effect,
Effort justification,
Egocentric bias,
Endowment effect,
False consensus effect,
Forer effect, Barnum effect,
Generation effect,
Hard-easy effect,
Identifiable victim effect
IKEA effect, Processing difficulty effect,
Illusion of control,
Illusory superiority,
Information bias,
Irrational escalation, Escalation of commitment,
Lake Wobegone effect,
Less-is-better effect
Loss aversion,
Occam's razor,
Optimism bias,
Overconfidence effect,
Pseudo certainty effect,
Reactance,
Reverse psychology,
Rhyme as reason effect,
Risk compensation, Peltzman effect. Hyperbolic discounting,
Self-serving bias,
Social comparison bias,
Social desirability bias,
Status quo bias
Sunk cost fallacy,
System justification,
Third-person effect,
Trait ascription bias,
Unit bias,
Zero-risk bias,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What should we remember?
Absent-mindedness,
Cryptomnesia,
Duration neglect,
Fading affect bias
False memory,
Google effect
Implicit associations, Implicit stereotypes, Stereotypical bias,
Levelling and sharpening,
Levels of processing effect,
Memory inhibition, Part-list cueing effect,
Misattribution of memory, Source confusion,
Misinformation effect,
Modality effect,
Negativity bias,
Next-in-line effect,
Peak–end rule,
Prejudice,
Primacy effect,
Recency effect,
Serial position effect,
Serial recall effect, List-length effect,
Spacing effect
Suffix effect
Suggestibility,
Testing effect,
Tip of the tongue phenomenon.

INFORMATION OVERLOAD

"Whenever we perceive something, the theory says that what we perceive is not objective reality, but rather the brain's best guess as to what's causing the sensations impinging on the body" (Buonomano, 2017 , p. 8). Sensations are generated by differences, by lack of uniformity, in the sensory field, say, information.

The world is full of information, in each given instant, we are bombed by information coming both from our internal body and the external world. All these stimuli are then further processed by our brain where they create countless loops, feedbacks, associations, etc. generating second, third, fourth, and so, order stimuli. No sensorial stimulus is simple .

The first reason why we filter information is thus the ongoing condition of information overload in which we have been plunged since the maternal womb. Then, there are two further reasons, which can be more or less relevant to each one of us, being, however, always present. The first is the need to act. There is too much information to be processed to be compatible with action. Action has its own timing, dictated by other humans, facts, events, contingencies. If we did not filter our perceptions and corresponding mental representations, we were paralysed, without any possibility to act and react.

The second reason why we filter information is frustration. To be sure, the external world is an ongoing source of pleasure but also of frustration and pain, from minor physical discomfort (a light too strong, a boring noise, etc.) till to major sufferance (loss of a loved one, major physical insult, etc.). Frustration teaches us that we would better to filter the external world, to avoid that it breaks into our minds. Human beings tend to use two main strategies to contain the mental intrusion of the external world, which threats to overwhelm them. The first strategy is to filter novelties selectively. When we use this strategy, we boost the importance of things that are unusual or surprising and skip over information that we think is expected. People who use prevalently this approach to reality are persons who tend to weigh the significance of the change happened (positive or negative) while they appear to be scarcely aware of the whole context. The second strategy is the opposite. People filter the status-quo selectively. They hardly notice novel things, persons, facts and conditions. The corollary of these two strategies is that people tend to ignore details that contradicts their own beliefs. Each one of us tends to see only details that confirm our existing beliefs.

Mistakes due to over-emphasising novelty

Sometimes, health officers and communicators put too much emphasis on the appearance of "new" virus strains, "new" diseases, "novel" outbreaks, and so. Similarly, they could tend to put too much emphasis on "novel" treatments, "new" diagnostic tools, "new" vaccines, and so. To be sure, we are not arguing that health officers and communicators are wrong or that they should hold reports, it is certainly appropriate to inform the public if, e.g., a new virus emerges, or a new vaccine is available. The communicational mistake is not to inform the public, but to put too much emphasis on the adjective "new". In fact, why a "lay" person should find subjectively relevant to this novelty? What is truly relevant to him? The risk to be infected, the behaviour to adopt to mitigate the risk, and what to do in case of disease; all other details can be communicated (within the context of a transparent communication), but they are not so relevant and – what is worse – they are confounding and potentially misleading. How could a standard citizen perceive these messages of novelty?

On the one hand, stressing too much that we are facing a new viral strain risks to induce - at the best - pessimistic environmental considerations; people tend to think in finalist terms and – if a new dangerous virus is emerging – to most it means that there is something wrong in our relationship with the Nature; at the worst, laying too much emphasis on "new" germs, risks to confirm conspiracy theory on secret microbiological experiments, escaped viruses, and so.
On the other hand, stressing too many novelties concerning vaccines, diagnostic tests, treatments, risks to instil the idea that scientists are "experimenting" in profit out of people's health, and, in the worst case, that they have undisclosed conflicts of interest.

Mistakes due to novelty avoidance

Other times, health officers and communicators devalue, or even ignore, elements of novelties concerning an outbreak (e.g., the appearance of new germs and diseases, the discovery of new vaccines, diagnostic tests, etc.), in this case, the watchword is "business as usual". Attempts to deny the outbreak are part of the typical description of epidemics reported by novelists of the past, when the first reaction of public authorities facing an outbreak, was to deny it (think of Thomas Mann's "Death in Venice"). However, today it is very rare – notably in high income and democratic countries (Linn, 2015) – that outbreaks as such are denied, although it could still happen that they are underrated during the prodromal phase (Fox, 1989). It could instead happen that health authorities and officers deny one or more minor issues connected with the outbreak, and this omission ends up jeopardizing the whole communication effort. You cannot convince people of your risk message if you don't acknowledge what is apparent to everybody. If you know that there is any variable which could undermine, or even contradict, your argument, the best practice is to start with discussing it openly and honestly. If you deny it, you destroy your credibility.

When, immediately after 2009 flu pandemics, the WHO kept on trying to convince governments and people about the potential severity of the next flu pandemic and the need to get swine flu vaccination (Gesser-Edelsburg, Mordini, James, & Greco, 2014), they should have first acknowledged that the scary scenario foreseen for H1N1 pandemic did not occur. Denying such an apparent reality, they disqualified their further risk communication. No matter whether they were right (in fact, another, more severe pandemic might emerge at any time), they lost credibility.

NOT ENOUGH MEANING

Human beings are semiotic animals, creators of meanings. The intrinsic need of the human mind to create extra meanings explains most of the conundrums met in risk communication and can provide some orientation to solve them. Nassim Nicholas Taleb's influential essay, The Black Swan, is entirely devoted to this question (Taleb N. N., 2007). Because its relevance - not only to the present chapter, but to the whole COMPARE approach to health risk communication and message mapping – it deserves a full quotation, "We like stories, we like to summarize, and we like to simplify, i.e., to reduce the dimension of matters. The first of the problems of human nature (...) is what I call the narrative fallacy (...) associated with our vulnerability to overinterpretation and our predilection for compact stories over raw truths. It severely distorts our mental representation of the world; it is particularly acute when it comes to the rare event (...) The narrative fallacy addresses our limited ability to look at sequences of facts without weaving an explanation into them, or, equivalently, forcing a logical link, an arrow of relationship, upon them. Explanations bind facts together. They make them all the more easily remembered; they help them make more sense. Where this propensity can go wrong is when it increases our impression of understanding (...). The problem of narrativity, although extensively studied in one of its versions by psychologists, is not so "psychological" (...) narrativity comes from an ingrained biological need to reduce dimensionality, robots would be prone to the same process of reduction. Information wants to be reduced" (Taleb N. N., 2007, pp. 63-64). In other words, to Taleb, we need to make some sense of the world not only in order to survive (this is somehow obvious) but also to process information and to communicate: "we need to reduce the dimension of matters so they can get into our heads. The more random information is, the greater the dimensionality, and thus the more difficult to summarize. The more you summarize, the more order you put in, the less randomness. Hence the same condition that makes us simplify pushes us to think that the world is less random than it actually is (...) Both the artistic and scientific enterprises are the product of our need to reduce dimensions and inflict some order on things. Think of the world around you, laden with trillions of details. Try to describe it, and you will find yourself tempted to weave a thread into what you are saying. A novel, a story, a myth, or a tale, all have the same function: they spare us from the complexity of the world and shield us from its randomness. Myths impart order to the disorder of human perception and the perceived "chaos of human experience" (Taleb N. N., 2007, p. 69). Narratives connect the dots, fill in the gaps, allowing us representing the external reality within our mind. This mechanism is universal, and there is nothing in it specific to health communicators, but the uncertainty surrounding EIDs and EEs and the need to make and communicate predictions (e.g., Will there be another outbreak? Where? When? Will the vaccine work? At what rate of efficacy? Etc.). Health communicators must use narrative, if they want to communicate effectively and govern communication , but also with narrative some mistakes might occur. Communicational mistakes connected with sense-making are threefold, (1) non-tailored enough stories; (2) out-of-sync stories, (3) lack of awareness of second, third, and so, order stories.

Stereotypical stories

Stories used to communicate health risk can take inspiration from everyday life and news, as well as from movies, theatrical plays, novels, paintings, and so. In all cases, they must be short and rapid, and visual in nature (say, they should not be necessarily presented in visual format, but they must be mentally visualisable). They must evoke universally human experience, embodied in culture-specific expression (archetypal stories). The main risk of such stories is that – if wrongly designed - they become cliché (stereotypical stories) (McKee, 1997). Stereotypical stories are poor, rigid, generic and inadequately tailored on the target audience. Health communicators should shape their stories both to achieve their communicational goal and to please the audience. In the end, the audience is the main variable, because if the audience feels the message false or insincere, they stop immediately trusting in communicators. No health risk communication campaign can be carried out without understanding of the reactions of the audience. The audience perceives almost immediately whether a narrative is an archetypal story, which draws on the richness of the collective imaginary, or it is a stereotype.

The first mistake which drives to stereotypization is to eliminate uncertainty, ignorance, and randomness from stories. Too linear stories sound false. To be sure, policymakers, public health decisionmakers, administrators, public officers, journalists, and the public search for clear explanations and don't like too many nuances.

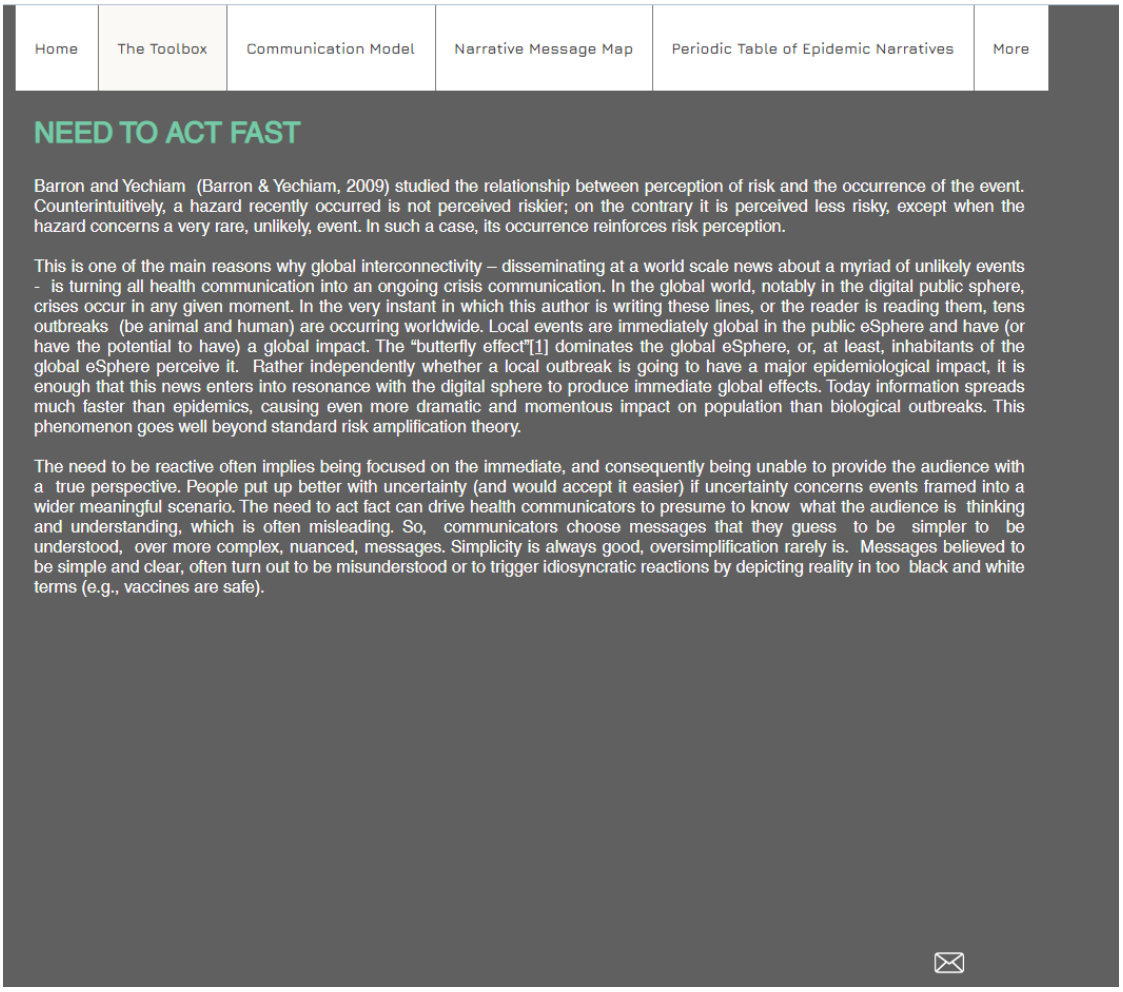
To be over telling is the second mistake, which may produce stereotypical stories as well. Too much explanation tightens up stories. Overtelling is always a sign of communicators' insecurity and lack of authority. Placing too much emphasis on minor details, or on details which are relevant only to scientists or health officers, but not to the audience, kills the message. Audiences are rarely interested, and certainly never convinced when they are forced to listen long, boring, medical explanations. As a rule of thumb, one should tell the audience only what the audience needs and wants to know and no more. In fact, there is nothing less eloquent than someone compulsory trying to be eloquent.

Out-of-sync stories

Time (timing, kairos) is essential to storytelling. We have already mentioned some of the specific problems related to timing in the electronic sphere. One of the main communicational law regarding time is the "Law of Diminishing Returns" (Stebbins, 1944), failures in respecting this law usually result in poor communication or even in communicational disasters (McKee, 1997), (Goins, 2012). The "Law of Diminishing Returns" states that the more often we make an experience, the less effect it produces. In communicational terms, it means that the more often we use a symbol, a theme, a trope, a given story, the less it impresses the audience. Ultimately, people don't even listen it any longer. Since 2009 flu pandemics, one of the worst communicational mistakes made by health agencies has been to repeat too many times (and without pausing enough time) that soon or later deadly pandemics will occur. This narrative has gone completely out-of-sync, people perceive it as a repetitive, boring, refrain, and they do not listen health officers warning against it. One should not confuse boring iteration of information, which is always a mistake, with redundant messages, which are instead a fundamental technique to be used to communicate in the digital world. Redundancy is not repetition, is amplification through "variations of the theme".

Lack of awareness of second, third, and so, order stories

Stories (be written or visual, told or represented, encapsulated in short messages or exposed in long novels) are like musical notes; they are aided by "musical harmonics", say, each text evokes a spectrum of subtexts. The text is the explicit content of the narrative, what we read, listen, see. Subtexts are the stories under that surface. Both in life and in communication, nothing is only what it appears. Communicators must be aware that communication is always multi-layered, and explicit stories always imply some second, third, and so, order stories. There is an old moviemakers' expression which summarises well this concept: "If the scene is about what the scene is about, you're in deep shit." (McKee, 1997). In fact, health communicators who do not understand and apply this rule end up creating unidimensional messages, unable to communicate the deepest thoughts and feelings to the audience. No health message is only about what the message seems to be about. It is also about else. It's that something else that will make the message work. There are always subtexts, which confirm, reinforce, mitigate, or even contradict, the explicit text. Real-life events are never black and white; they are nuanced. Credible health communicators should avoid apodictic statements and arrogant messages. Subtext awareness mitigates this risk.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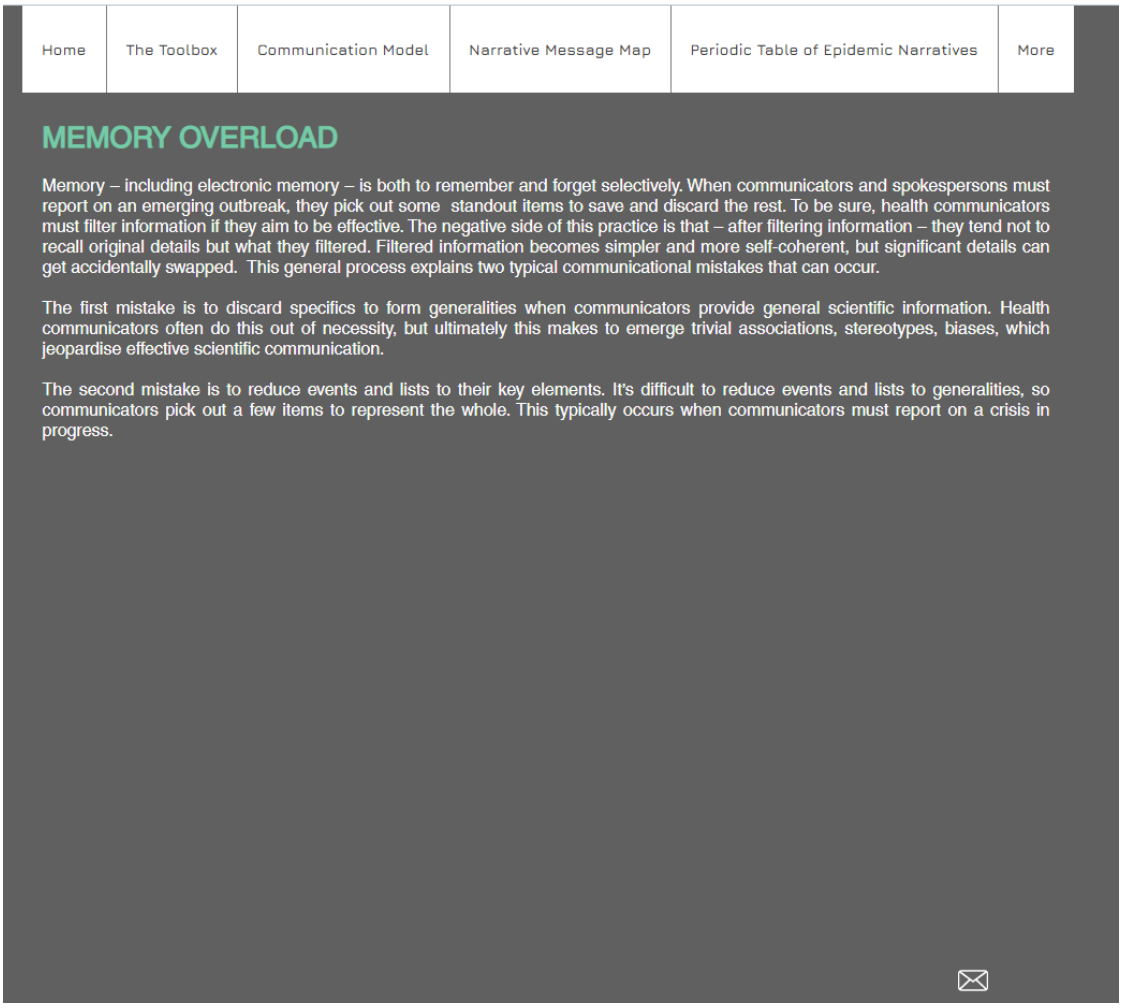
NEED TO ACT FAST
Barron and Yechiam (Barron & Yechiam, 2009) studied the relationship between perception of risk and the occurrence of the event. Counterintuitively, a hazard recently occurred is not perceived riskier; on the contrary it is perceived less risky, except when the hazard concerns a very rare, unlikely, event. In such a case, its occurrence reinforces risk perception.
This is one of the main reasons why global interconnectivity – disseminating at a world scale news about a myriad of unlikely events - is turning all health communication into an ongoing crisis communication. In the global world, notably in the digital public sphere, crises occur in any given moment. In the very instant in which this author is writing these lines, or the reader is reading them, tens outbreaks (be animal and human) are occurring worldwide. Local events are immediately global in the public eSphere and have (or have the potential to have) a global impact. The "butterfly effect"[1] dominates the global eSphere, or, at least, inhabitants of the global eSphere perceive it. Rather independently whether a local outbreak is going to have a major epidemiological impact, it is enough that this news enters into resonance with the digital sphere to produce immediate global effects. Today information spreads much faster than epidemics, causing even more dramatic and momentous impact on population than biological outbreaks. This phenomenon goes well beyond standard risk amplification theory.
The need to be reactive often implies being focused on the immediate, and consequently being unable to provide the audience with a true perspective. People put up better with uncertainty (and would accept it easier) if uncertainty concerns events framed into a wider meaningful scenario. The need to act fact can drive health communicators to presume to know what the audience is thinking and understanding, which is often misleading. So, communicators choose messages that they guess to be simpler to be understood, over more complex, nuanced, messages. Simplicity is always good, oversimplification rarely is. Messages believed to be simple and clear, often turn out to be misunderstood or to trigger idiosyncratic reactions by depicting reality in too black and white terms (e.g., vaccines are safe).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MEMORY OVERLOAD
Memory – including electronic memory – is both to remember and forget selectively. When communicators and spokespersons must report on an emerging outbreak, they pick out some standout items to save and discard the rest. To be sure, health communicators must filter information if they aim to be effective. The negative side of this practice is that – after filtering information – they tend not to recall original details but what they filtered. Filtered information becomes simpler and more self-coherent, but significant details can get accidentally swapped. This general process explains two typical communicational mistakes that can occur.
The first mistake is to discard specifics to form generalities when communicators provide general scientific information. Health communicators often do this out of necessity, but ultimately this makes to emerge trivial associations, stereotypes, biases, which jeopardise effective scientific communication.
The second mistake is to reduce events and lists to their key elements. It's difficult to reduce events and lists to generalities, so communicators pick out a few items to represent the whole. This typically occurs when communicators must report on a crisis in progress.


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Narrative Messages
Recon
The Recon Phase allows defining the problem(s), its/their main feature(s) as well as making an inventory of resources. The Recon Phase includes the description of the Communication-Action Framework, the definition of the communication phase, the identification of the target audience and the creation of the Canovaccio.
Opening
The opening is the master story. Its goal is to be recognised and to orient the audience. The opening story must refer, directly or indirectly, to relevant aspects of a given Communication-Action Framework, addressing the specific target audience. Select a story in the canovaccio or outline a new story by using canovaccio elements.
Messaging
3 key messages, which are short verbal communications, provided with informational contents. However information is instrumental in achieving four additional and more important goals (1) Education; (2) Behaviour change and protective action; (3) Crisis warnings and emergency information; (4) Problem-solving and conflict resolution
Closing
The closing is a short episode created within the scope of the master story. Closing story consolidates the messages, strictly associating them to the master story. The closing must always be "projected" in the future, never conclude with stories which tell of the past or only of the present. The tone of the closing must be in line with the tone of key message 3.
SELECTED ONLINE RESOURCES FOR NARRATIVE COMMUNICATION


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Recon
Target Audience
Make this yours. Add images, text and links, or connect data from your collection.
Communication Phase
Make this yours. Add images, text and links, or connect data from your collection.
Communication-Action
Make this yours. Add images, text and links, or connect data from your collection.
Canovaccio
Make this yours. Add images, text and links, or connect data from your collection.
TEMPLATES


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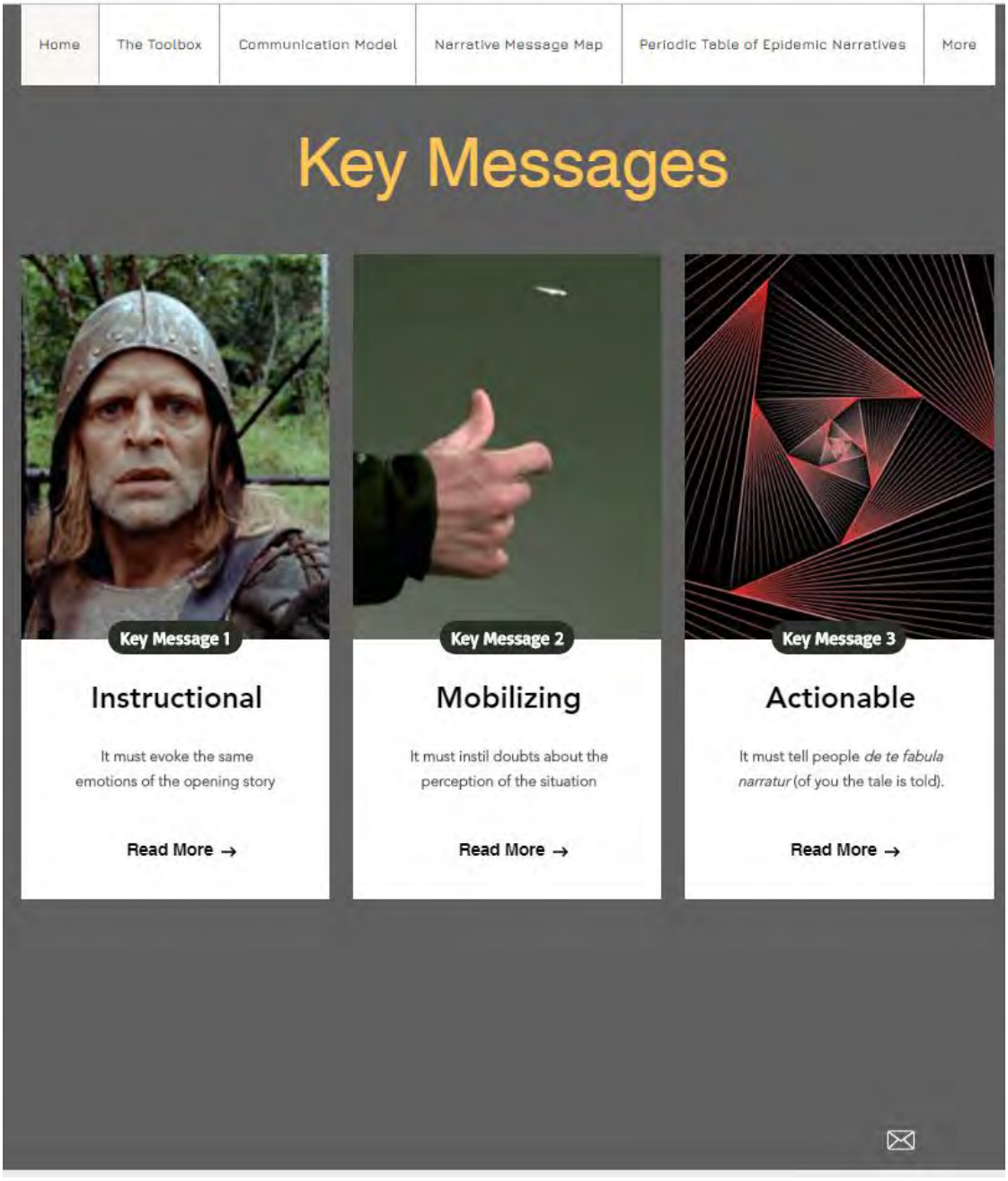
Opening
The opening is a short story based on the outcomes of the Recon phase. Its goal is to be recognised and to orient (provide a direction to) the audience. If the story is properly chosen, it will be felt familiar and populated with details by the audience. The opening story must refer, directly or indirectly, to relevant aspects of a given Communication-Action Framework, addressing the specific target audience. To do so, the best strategy is to select a story in the canovaccio or to outline a new story by using the main canovaccio elements. Stories and elements must be chosen according the main variables previously listed (e.g., physical, communicational, mental dimensions of the Communication-Action Framework; target audience profile and communication needs; archetypes and myths; etc.). This story will become the master story of each given Narrative Message Map. Each Narrative Message Map must have its master story, or a common storyline, which provides the map with consistency, internal coherence and narrative rationality, in a word, with "good reasons" (Fisher W. , 1987). The master story will become the reference story by providing a benchmark for the health communicator team. Choosing the master story of a communication campaign or a message map is the most delicate phase of the whole process. Success chiefly depends on this decision. It is highly advisable to pre-test it by using, e.g., focus groups or in-depth interviews.
The master story will never be told as such; it will remain in the background, acting as a placeholder for creating smaller, fragmented, episodes. Episodes, or micro stories, are not necessarily texts or to be based on verbal narrations. They can also be an image, or a series of images; a short video; a piece of creative nonfiction; and so. The decision depends on the relevant communicational context, the main features of the target audience, and health communicators' competencies and skills. One of these episodes will be chosen for the opening, whose near goal is to prepare the first key message by warming up the audience.
Through the opening story, health communicators aim to gain confidence and credibility. The opening story must present health communicators in an endearing way, suggesting that they are not just "expert", but they are experienced and directly affected, at least in some ways, by the issue. This objective must be pursued with great tact and caution by using symbols, metaphors, implications, metonyms. It can also be searched by using (1) non-verbal languages, e.g. body language and prosodic elements during face to face communication; (2) colours, fonts, layout, graphs in written and digital communication; (3) hypertexts, tags and keywords in digital communication; (4) musical elements in videoclips; and so.
Archetypes
Simple patterns based on polar oppositions, good/bad, down/up, black/white, earth/sky, light/dark, animate/inanimate, etc.
Myths
More complex metaphorical narratives, built around specific themes such as impurity, guilty, shadow, fall, birth, re-birth, and so.
Paradigms
64 exemplar stories taken from novels, short stories, theatre and drama, paintings, music , video games.
7 Story Plots
The celebrated seven basic story lines described by Christopher Booker .
CHARACTERS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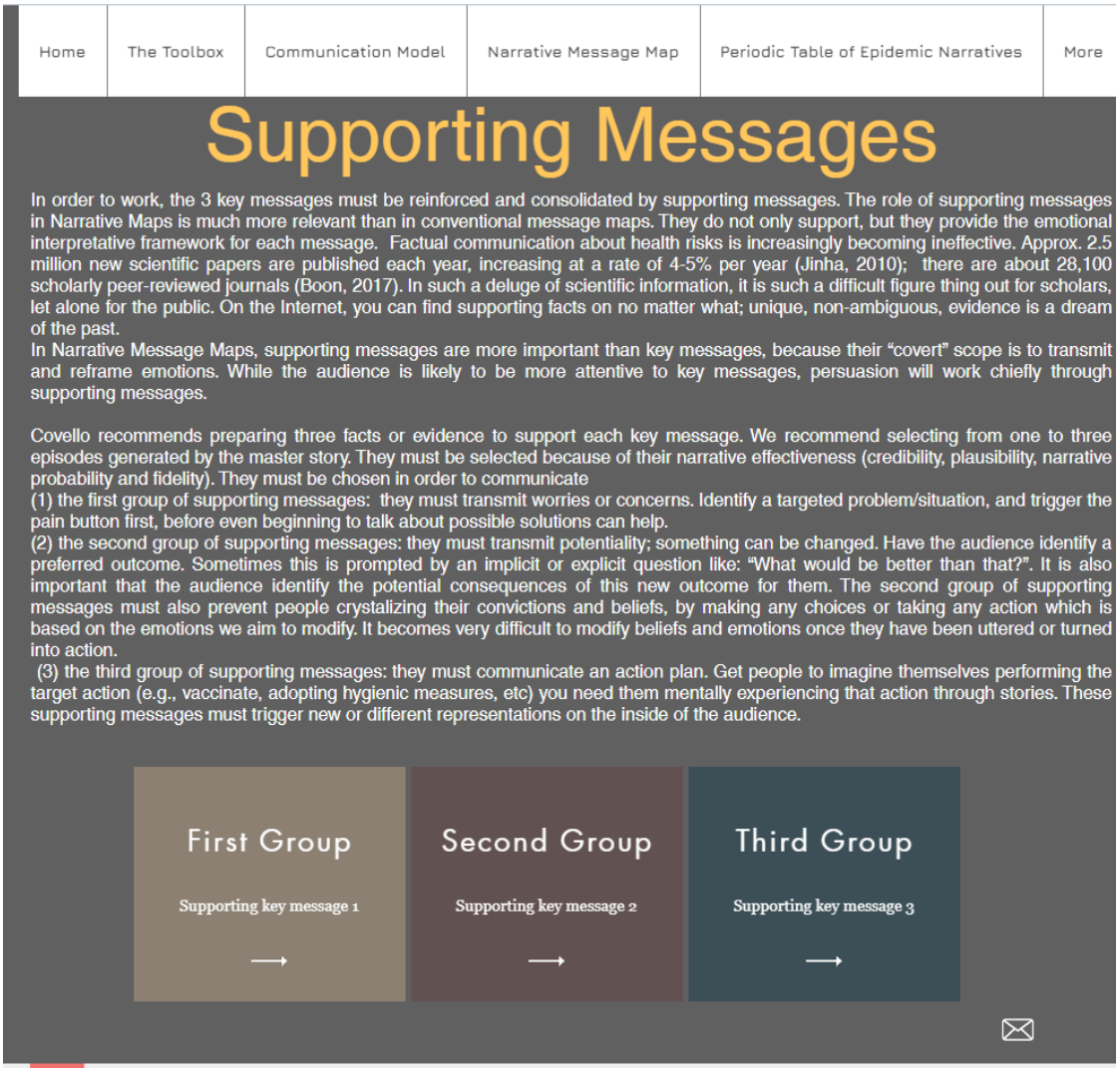
Key Messages
Key Message 1
Instructional
It must evoke the same emotions of the opening story
Read More →
Key Message 2
Mobilizing
It must instil doubts about the perception of the situation
Read More →
Key Message 3
Actionable
It must tell people de te fabula narratur (of you the tale is told).
Read More →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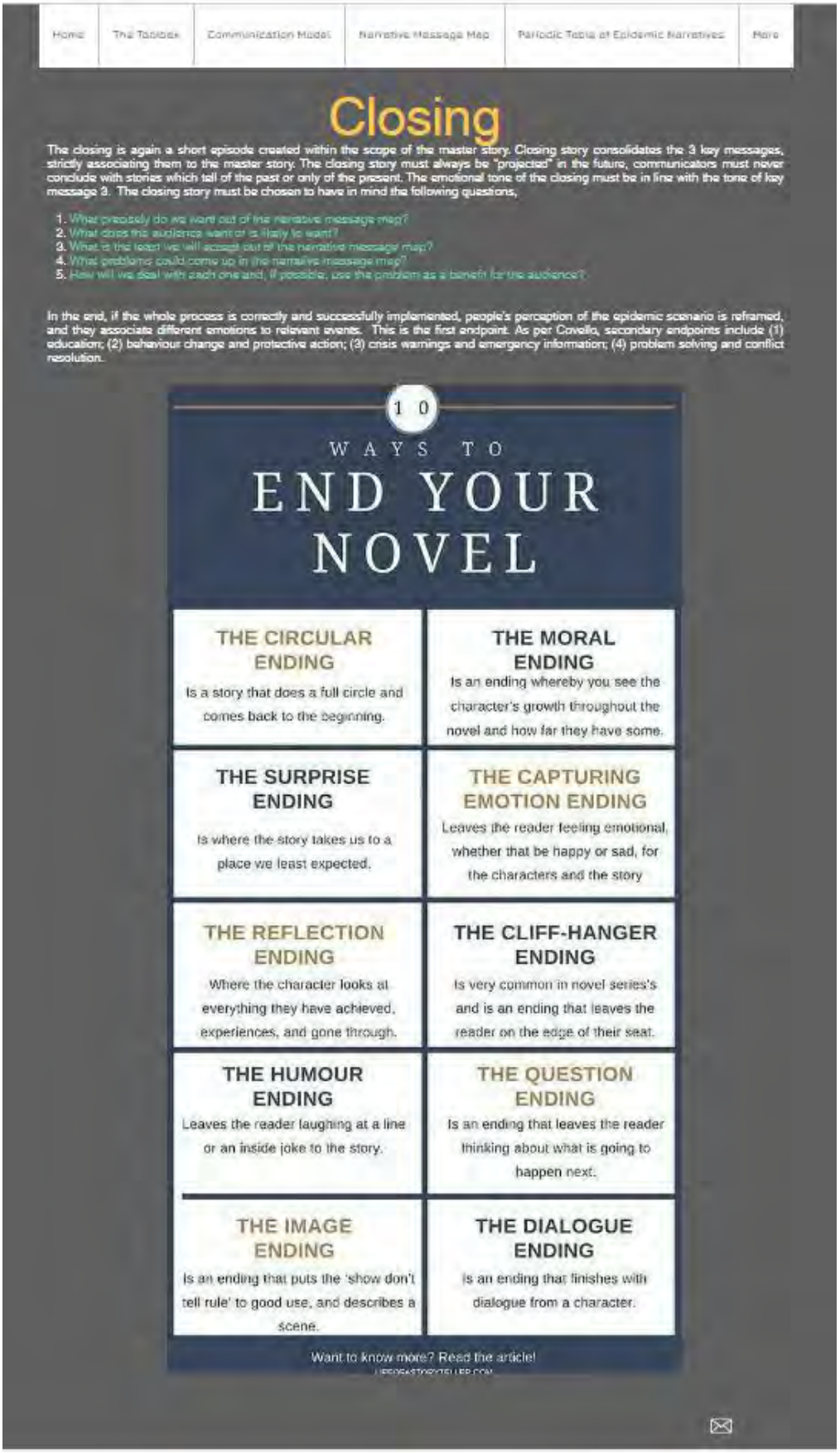
Supporting Messages
In order to work, the 3 key messages must be reinforced and consolidated by supporting messages. The role of supporting messages in Narrative Maps is much more relevant than in conventional message maps. They do not only support, but they provide the emotional interpretative framework for each message. Factual communication about health risks is increasingly becoming ineffective. Approx. 2.5 million new scientific papers are published each year, increasing at a rate of 4-5% per year (Jinha, 2010); there are about 28,100 scholarly peer-reviewed journals (Boon, 2017). In such a deluge of scientific information, it is such a difficult figure thing out for scholars, let alone for the public. On the Internet, you can find supporting facts on no matter what; unique, non-ambiguous, evidence is a dream of the past.
In Narrative Message Maps, supporting messages are more important than key messages, because their "covert" scope is to transmit and reframe emotions. While the audience is likely to be more attentive to key messages, persuasion will work chiefly through supporting messages.
Covello recommends preparing three facts or evidence to support each key message. We recommend selecting from one to three episodes generated by the master story. They must be selected because of their narrative effectiveness (credibility, plausibility, narrative probability and fidelity). They must be chosen in order to communicate
(1) the first group of supporting messages: they must transmit worries or concerns. Identify a targeted problem/situation, and trigger the pain button first, before even beginning to talk about possible solutions can help.
(2) the second group of supporting messages: they must transmit potentiality; something can be changed. Have the audience identify a preferred outcome. Sometimes this is prompted by an implicit or explicit question like: "What would be better than that?". It is also important that the audience identify the potential consequences of this new outcome for them. The second group of supporting messages must also prevent people crystalizing their convictions and beliefs, by making any choices or taking any action which is based on the emotions we aim to modify. It becomes very difficult to modify beliefs and emotions once they have been uttered or turned into action.
(3) the third group of supporting messages: they must communicate an action plan. Get people to imagine themselves performing the target action (e.g., vaccinate, adopting hygienic measures, etc) you need them mentally experiencing that action through stories. These supporting messages must trigger new or different representations on the inside of the audience.
First Group
Supporting key message 1
Second Group
Supporting key message 2
Third Group
Supporting key message 3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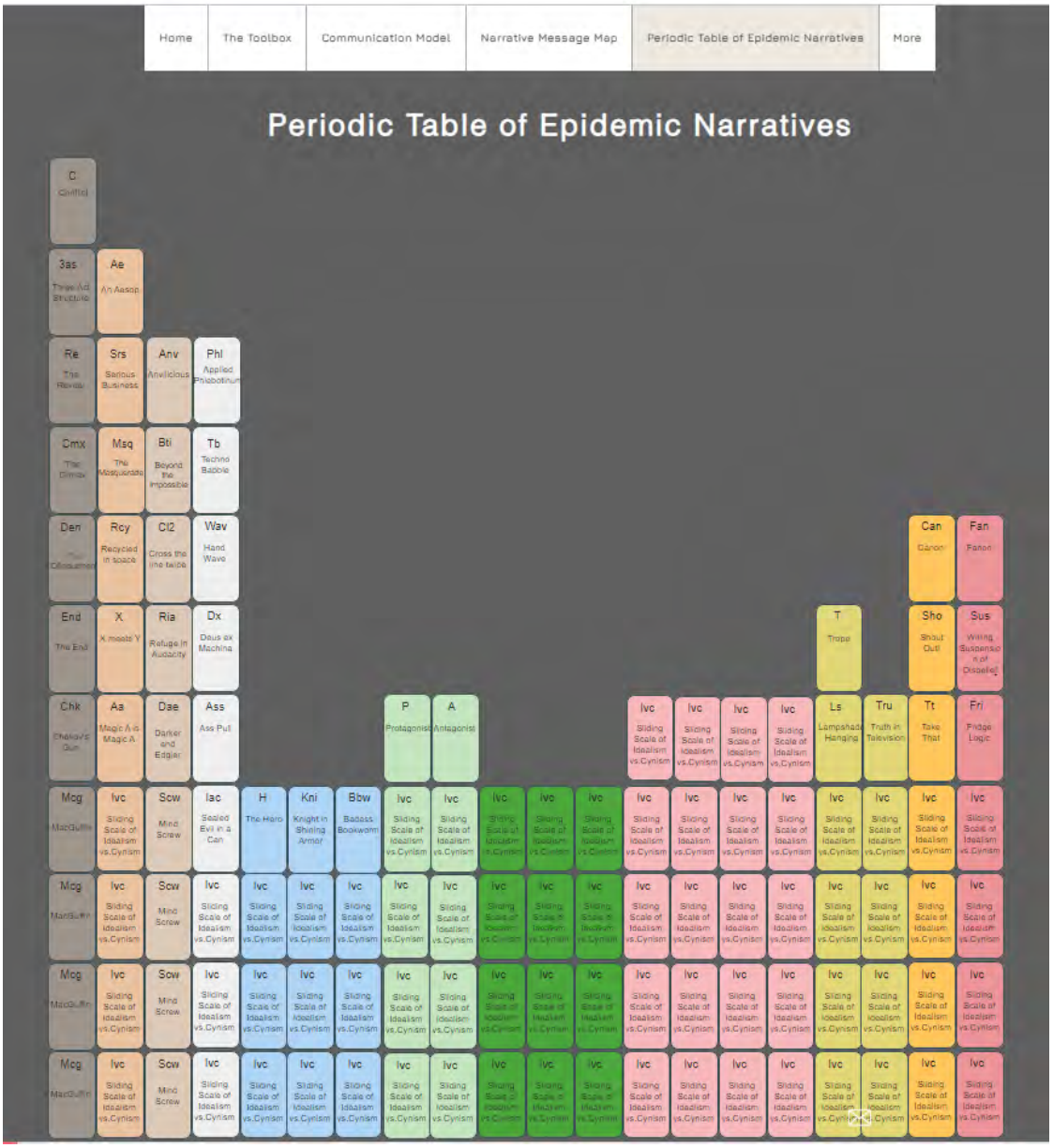
Closing
The closing is again a short episode created within the scope of the master story. Closing story consolidates the 3 key messages, strictly associating them to the master story. The closing story must always be "projected" in the future, communicators must never conclude with stories which tell of the past or only of the present. The emotional tone of the closing must be in line with the tone of key message 3. The closing story must be chosen to have in mind the following questions,
1. What precisely do we want out of the narrative message map?
2. What does the audience want or is likely to want?
3. What is the least we will accept out of the narrative message map?
4. What problems could come up in the narrative message map?
5. How will we deal with each one and, if possible, use the problem as a benefit for the audience?
In the end, if the whole process is correctly and successfully implemented, people's perception of the epidemic scenario is reframed, and they associate different emotions to relevant events. This is the first endpoint. As per Covello, secondary endpoints include (1) education; (2) behaviour change and protective action; (3) crisis warnings and emergency information; (4) problem solving and conflict resolution.
10
WAYS TO
END YOUR NOVEL
THE CIRCULAR ENDING
Is a story that does a full circle and comes back to the beginning.
THE MORAL ENDING
Is an ending whereby you see the character's growth throughout the novel and how far they have come.
THE SURPRISE ENDING
Is where the story takes us to a place we least expected.
THE CAPTURING EMOTION ENDING
Leaves the reader feeling emotional, whether that be happy or sad, for the characters and the story
THE REFLECTION ENDING
Where the character looks at everything they have achieved, experiences, and gone through.
THE CLIFF-HANGER ENDING
Is very common in novel series's and is an ending that leaves the reader on the edge of their seat.
THE HUMOUR ENDING
Leaves the reader laughing at a line or an inside joke to the story.
THE QUESTION ENDING
Is an ending that leaves the reader thinking about what is going to happen next.
THE IMAGE ENDING
Is an ending that puts the 'show don't tell rule' to good use, and describes a scene.
THE DIALOGUE ENDING
Is an ending that finishes with dialogue from a character.
Want to know more? Read the article!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Overview of the main communication theories and models
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Manual to use the standard message map methodology for risk communication
Face to Face Communication
Operational guidelines and suggestions on F2F communication


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SPREADSHEET TOOLBOX
A collection of spreadsheet templates. A productive way to enrich your knowledge and find out more about risk communication and COMPARE Risk Communication.
This is a great space to find helpful instruments and inspiration for developing your own templates.
STAKEHOLDER ANALYSIS
COMPARE STAKEHOLDERS
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EVALUATION TOOLS


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Education Material
Cultural Analysis for Health Risk Communication
Open
Culture is a network of meanings shared by individuals within social groups, communities, societies, and so. Culture shapes how people comprehend their world (worldview), and it is the filter through which they organise their experience. Culture provides people with the overall framework to understand, and react to, events and other people around them. Cultural understanding is thus critical to mitigating risks to be misunderstood, notably in interconnected societies and during the times of crisis.
Credibility and digital trust
Open
Trusting means relying on the "solidity" of something or someone. By definition, trust occurs when an individual is assured of the result of an action, and the occurrence of good or bad results is contingent on the behaviour of another agent that could be a person, a machine, a process or a system. In communication terms, there are various conditions that must be fulfilled so that communication may be trusted and positively received and elaborated by receivers. Trust implies both trust in the communication system and in the sender. What is relevant in communication is not the abstract, objective, trustworthiness, rather the actual credibility. A sender can be theoretically trustworthy but if it is not perceived to be such by the receiver, say, if it is not credible, communication will be anyway jeopardized.
Frames and Mental Strata
Open
Communication is always filtered through frames and mental strata. Frames are filters through which one looks at reality and interprets communication. Framing processes usually occur below the threshold of receiver's awareness, involving both implicit verbal suggestions (e.g., subtexts, effects of the contexts, intertextuality, etc.) and non-verbal messages (e.g. visual, acoustic, tactile, etc.). Mental strata, or levels, are space representations of the mind. The description of the human mind in strata, ruled by different logics, is operationally helpful to describe different modes of framing and organizing communication. The mind is a classificatory system, which is constantly at work organising experience into different categories; this makes his approach particularly relevant to communication theory.

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Listening and Speaking

Open

Communicating is different from informing; it is not just "passing down" a piece of information; it is not just declarative. Communication is not yet "truth-telling", still less telling nothing at all; it is the way to get to the listener's truth. The key to good communication is to understand the perspective of the receiver. This is very difficult. To understand anyone else's perspective is always difficult. Finally, communication is never purely cognitive not even just "in the head". It always involves emotions, even when it seems purely rationale, and the context in which communication takes place, which is the social, human, context.

Narrative Communication

Open

"*Narrative is one of the most fundamental and powerful elements of human cognition. We are, as a species, storytellers, and the stories we tell—either personal ones that shape our perception of ourselves or collective ones that shape social interactions—are an enduring part of human behaviour*" (Rajeski, 2005). Communication is always narrative both because the sender cannot avoid including narrative subtexts in any message he produces, and because the receiver cannot avoid interpreting the message through narrative schemes. Both sender and receiver are not necessarily aware of the narrative nature of their communication, because they both expect that narratives are recognisable stories, and they do not consider implicit narratives, which are instead most of the narratives embedded in communication. Said so, there is also a special category of messages which are designed, knowingly and purposely, to be narrations, we call them "narrative messages"

Risk Communication and Risk Perception

Open

Risk Communication can be defined as the exchange of information and risk assessments among experts, public authorities, mass media, stakeholder groups and citizens, aiming at assisting decision making processes about a given class or risks or a specific risk (ECDC, 2013). While informing does not necessarily aim to produce any change in the recipient, communicating implies the goal to modify the recipient's understanding of an event and related behaviours; in other words, persuasion is part of any form of communication. When you inform about risks, you aim simply to pass down a piece of information to someone else, in principle you are not interested in the effects of your information, except that it has finally reached its receiver. Some communication models include recipient's feedback as an indispensable element of the information process. If the successful transmission of a message is essential to speak of information (i.e., a piece of information lost in the process is no longer actual information), this logically implies that acknowledgement is part of the entire process. In such a limited sense, also informing always demands an action from the recipient, although it could only be an automatic signal. Acknowledgement does not imply; however, the recipient accepts the message (i.e., he could still reject it).

The final goal of risk communication is to prompt action through knowledge. If there is no transmission of knowledge, communication becomes purely manipulative. If there is not the goal to foster action, communication becomes only transmission of information and education. Messages could be more or less persuasive or informative (it depends on the specific need of a given campaign), but both components must always be present. Knowledge should have a transformational effect on recipient's behaviours and attitudes. Knowledge, as we have previously discussed, is much more than rational understanding. If knowledge remains purely cognitive is devoid of any transformational power, and it is not actual knowledge. When information becomes knowledge, the process unavoidably generates – or evokes, or is sided by[2] - emotions, there is no experience without emotions, and when information is not turned into experience (even purely intellectual experience) it remains empty and futile pseudo-knowledge. True knowledge, totally devoid of any emotional "colouring", does not exist (Hamilton, Bower, & Frijda, 1997), (Watzlawick, Beavin, & Jackson, 1967), (Wilson, 2002), (Goldie, 2004). Thus, a further problem arises, what emotions and how risk communication should evoke in each specific context.


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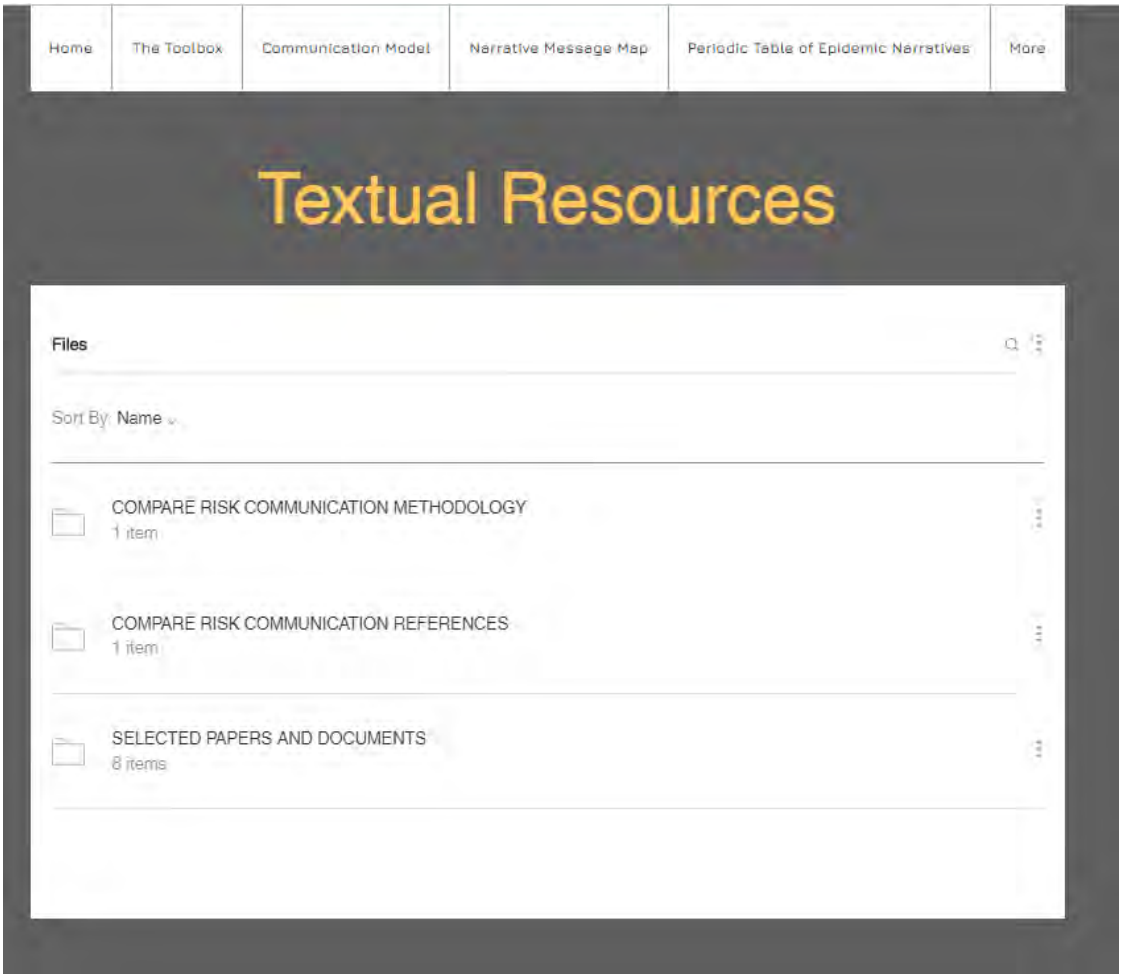
The Risk Semantic Field
Open
Corpus linguistics analysis has shown that people have "lost" the words to express their needs of mental peace and spiritual serenity. One of the reasons of the gap between public health communication and people's perception of risk is likely to be the existence of two linguistic registers, that make people's and communicators' languages only apparently similar, but far away from each other. Effective risk communication should also provide people with words to formulate thoughts that they perceive in themselves, but they cannot any longer express in full.
Vaccine and Magic Thinking
Open
Confronted with crises, or the threat of crises, social groups and communities tend to show regressive psychological phenomena, which are defences against situations perceived as dangerous and threatening. Regression emerges when individuals and social groups are under stress, this becomes evident in some dysfunctional behaviours (e.g., vaccine hesitancy). They can become prevalent in health communication, notably when emotional components prevail, as it is often the case with crisis communication.
Pandemic Online Game
Open
The player creates and evolves a pathogen to destroy the world with a deadly plague by creating new plague types. The game uses an epidemic model with a complex and realistic set of variables to simulate the spread and severity of the plague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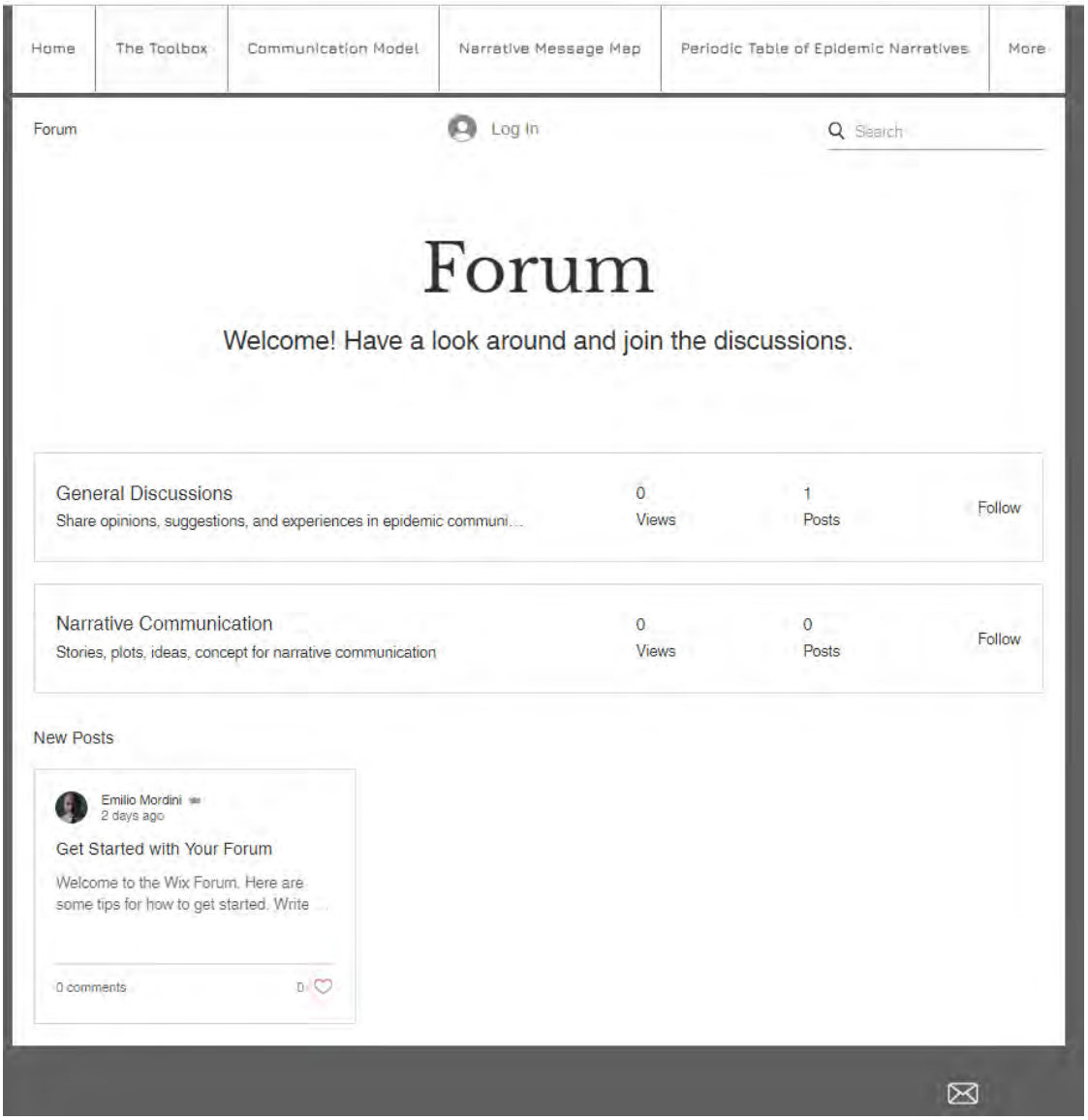
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Emilio Mordini
2 days ago
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Welcome to the Wix Forum. Here are some tips for how to get started. Write
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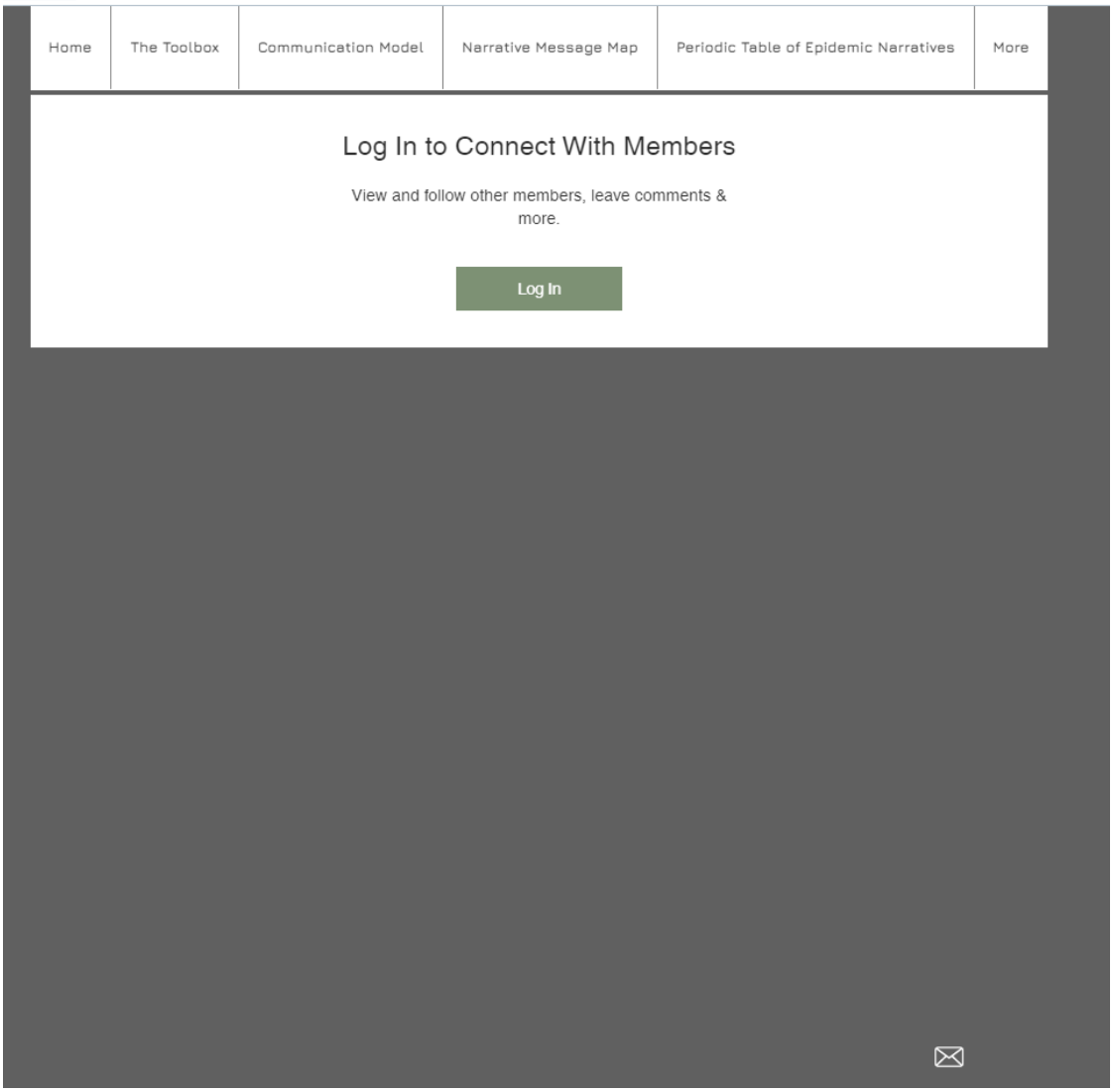
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Annex 1

Workshop on

Vaccines, anti-vax, and health communication

On 26-27 October 2018, COMPARE Risk Communication WP10 convened a workshop on Vaccines, anti-vax, and health communication. The workshop, organised under the aegis of the Italian Medical Association and with the sponsorship of the Italian Ministry of Health, was held in Fiume Veneto (PN), Italy.

Speakers included Gerardo D'Amico, scientific writer and journalist, vice editor-in-chief, RaiNews24, Rome; Elena Fattori, vice-president of the Standing Committee Food and Agriculture of the Italian Senate, Rome; Alberto Garcia, UNESCO Chair on Bioethics and Human Rights, Rome; Donato Greco, past-Director of the Laboratory of Epidemiology and Biostatistics of the Italian National Institute of Health, Roma; Guido Lucchini, Chairman of the Medical Association of Pordenone, Pordenone; Alessandra Martini, European Commission. Research & Innovation DG, Unit RTD.E.3. Fighting infectious diseases and emerging epidemics; Emilio Mordini, COMPARE Risk Communication, Responsible Technology, Paris; Giorgio Mustacchi, Professor Emeritus of Medical Oncology, University of Trieste, Trieste; Andrea Rubin, Sociologist, "*Observa Science in Society*", University of Salerno, Salerno; Giorgio Simon, Managing Director, Local Health Authority of Pordenone, Pordenone; Fabrizio Turoldo, Professor of Moral Philosophy, University Ca' Foscari, Venice. A larger Advisory Committee shared all workshop documents and participated in the online discussion. In total 22 experts were involved. The workshop addressed vaccine hesitancy and refusal, which are complex phenomena, indubitably due also to disinformation, scientific illiteracy, medical quackery. Yet – workshop participants argued - medical education, correct information, prosecution of charlatanism are not enough, although essential. Why so many educated people, even apparently scientific literate, distrust vaccination and believe in unbelievable conspiracy theories concerning vaccines? According to workshop participants, the current crisis of trust, involving scientific expertise and health communication, demands a more in-depth analysis. The workshop was articulated in an internal session (restricted to experts) and a public session involving more than 60 GPs and health professionals.

The COMPARE workshop prompted, and paved the way for, further initiative on vaccine communication. On November 9, COMPARE WP10 co-promoted with local authorities and the Blood Donors Association a conference on vaccination open to the general public. Approx. 300 citizens participated.

On December 4, COMPARE WP10 co-promoted with the Medical Association a course on vaccine communication, providing 1 CME credit for GPs, paediatricians and health personnel working in public health and prevention services. Approx. 200 health professionals participated in the course.

On November 19, COMPARE WP10 participated in the European Biomedical Policy Forum workshop on *"Vaccination challenges and EU cooperation. What is the way forward?",* which took place in Brussels convened by the FEAM (Federation of European Academies of Medicine). We contacted Heidi Larson, Professor of Anthropology and Director of The Vaccine Confidence Project, in order to strengthen cooperation in the field of vaccine communication.

Spadaro: *Piazza Mercatello during 1656 plague* (San Martino Museum - Naples)

26-27 OCTOBER 2018
VACCINES, ANTI-VAX, AND HEALTH COMMUNICATION

Participants

- **Gerardo D'Amico**, scientific writer and journalist, vice editor-in-chief, RaiNews24, Rome
- **Elena Fattori**, vice-president of the Standing Committee Food and Agriculture of the Italian Senate, Rome
- **Alberto Garcia**, UNESCO Chair on Bioethics and Human Rights, Rome
- **Donato Greco**, past-Director of the Laboratory of Epidemiology and Biostatistics of the Italian National Institute of Health, Roma
- **Guido Lucchini**, Chairman of the Medical Association of Pordenone, Pordenone
- **Alessandra Martini**, European Commission. Research & Innovation DG, Unit RTD.E.3. Fighting infectious diseases and emerging epidemics
- **Emilio Mordini**, COMPARE Risk Communication, Responsible Technology, Paris
- **Giorgio Mustacchi**, Professor Emeritus of Medical Oncology, University of Trieste, Trieste
- **Andrea Rubin**, Sociologist, "Observa Science in Society", University of Salerno, Salerno
- **Giorgio Simon**, Managing Director, Local Health Authority of Pordenone, Pordenone
- **Fabrizio Turoldo**, Professor of Moral Philosophy, University Ca' Foscari, Venice

COMPARE (*Collaborative management platform for detection and analysis of (re-) emerging and foodborne outbreaks in Europe*) is funded by the European Commission H2020 Programme (Grant n. No. 643476)
www.compare-europe.eu

Friday 26 October
(internal session)

How to talk to patients, journalists and policy makers

Arrival and registration
14.00 – Opening
14:15 – Informal Presentations
16.00 – Roundtable
19.00 – Closing
19.30 – Business Dinner
21.00 – Fireplace talks

Saturday 27 October
(public session)
Working language Italian

Vaccination and autism: what makes a hoax successful?

09.00 – Opening
09:30 – Roundtable moderated by Gerardo D'Amico
10:30 – Coffee
11:00 - Questions and Comments
12:30 – Conclusions
12:45 – Informal talks and refreshments
13:30 – End of the workshop

L'ULTIMO MULINO
VIA MOLINO 45
33080, FIUME VENETO (PN)
Tel +39 0434 957911
info@lultimomulino.com
www.lultimomulino.com
26-27 ottobre 2018

Participation in the **internal session** is only by invitation, participation in the **open session** is restricted to health professionals. There are no participation fees. Advance registration is necessary. Please send an email to workshop@riskcommunication-compare.eu providing your name, main qualification and affiliation.

VACCINI, MOVIMENTI ANTI-VACCINAZIONE E COMUNICAZIONE

PARTECIPANTI

- **Gerardo D'Amico**, giornalista e scrittore scientifico, RaiNews24, Roma
- **Elena Fattori**, vicepresidente della commissione permanente Agricoltura del Senato, Roma
- **Alberto Garcia**, UNESCO Chair in Bioethics and Human Rights, Roma
- **Donato Greco**, Laboratorio di Epidemiologia e Biostatistica dell'Istituto Superiore di Sanità, Roma
- **Guido Lucchini**, Presidente dell'Ordine dei Medici di Pordenone, Pordenone
- **Alessandra Martini**, European Commission. Research & Innovation DG, Unit RTD.E.3. Fighting infectious diseases and emerging epidemics
- **Emilio Mordini**, COMPARE Risk Communication, Center for Health and Risk Communication University of Haifa, Parigi
- **Giorgio Mustacchi**, Docente Emerito di Oncologia Medica, Università di Trieste, Trieste
- **Andrea Rubin**, sociologo, "Observa Science in Society", Università di Salerno, Salerno
- **Giorgio Simon**, Direttore Generale dell'AAS 5 di Pordenone
- **Fabrizio Turoldo**, Filosofia Morale, Università Ca' Foscari di Venezia

Con patrocinio di

MINISTERO DELLA SALUTE (richiesto)

ORDINE DEI MEDICI DI PORDENONE

La partecipazione alla sessione interna è solo su invito. La partecipazione alla sessione pubblica è libera ma limitata agli operatori sanitari o ai medici di base. Non vi sono spese di registrazione. È necessario registrarsi in anticipo inviando un' email specificando nome, cognome, qualifica e indicando in oggetto REGISTRAZIONE WORKSHOP VACCINI a workshop@riskcommunication-compare.eu

Il workshop si tiene presso: **L'ULTIMO MULINO**
Via Mulino 45- 33080 Fiume Veneto
Tel +39 0434 957911 - info@ultimomulino.com

Linguaggio di lavoro: italiano

COMPARE RISK COMMUNICATION

www.compare-europe.eu
compare@responsibletechnology.eu

COMPARE (Collaborative management platform for detection and analysis of (re-) emerging and foodborne outbreaks in Europe) is funded by the European Commission H2020 Programme (Grant No. 643476)

WORKSHOP SU VACCINI, MOVIMENTI ANTI-VACCINAZIONE E COMUNICAZIONE

26-27 ottobre 2018

Vaccini, movimenti anti-vaccinazione e comunicazione

L'ULTIMO MULINO
Via Mulino 45 - 33080 Fiume Veneto
Tel +39 0434 957911 - info@ultimomulino.com

compare

Perché un workshop su vaccini, movimenti anti-vaccinazione e comunicazione?

Il progetto europeo di ricerca **COMPARE** ha come obiettivo la creazione di una piattaforma per l'identificazione delle malattie infettive emergenti attraverso le metodologie di *predictive analytics*. Il progetto affronta anche la comunicazione del rischio inerente le nuove epidemie. Il concetto di rischio in medicina si è spesso prestato a fraintendimenti, ancora di più oggi che la scienza si affida alla data analisi. Si parla di *data storytelling* per significare che il modo di comunicare le informazioni dosunte dai *big data* è più simile ad una narrazione che ad una relazione scientifica. I confini tra verità e finzione finiscono così per confondersi pericolosamente.

Un esempio di questa complessa situazione è quello offerto da vaccini e vaccinazioni. Sin dall'epoca di Jenner, questa pratica ha generato controversie e paure, tuttavia gli straordinari successi ottenuti nella prevenzione delle malattie infettive nel corso del Novecento sembravano aver fugato gran parte delle perplessità. Inaspettatamente, invece, la diffidenza verso i vaccini sta di nuovo crescendo e contagiando strati importanti della popolazione, nonché una parte degli organi di comunicazione (specialmente i nuovi media) e dei decisori politici.

Non c'è dubbio che dietro a questa diffidenza vi siano disinformazione, ignoranza, a volte malafede interessata. Tuttavia siamo davvero sicuri che informare, educare (e perseguire per legge i casi di ciarlataneria sepolcrale) sia sufficiente? Non bisognerebbe forse interrogarsi su come mai tante persone, pure dotate di buona educazione scientifica, siano oggi contagiate dall'epidemia di fake news sui vaccini? E se questa marea montante fosse solo il segno di una crisi più generale della comunicazione scientifica?

Attività preparatoria
Documento preparatorio su "Vaccini e fake news"

15 Settembre: breve documento preparatorio (2-3 pagine in italiano) su "Vaccini e fake news"

15 Ottobre: data ultima per modificare e commentare il documento preparatorio

Venerdì 26 ottobre
Comunicare con pazienti, giornalisti, politici

Venerdì 26 è dedicato alla riflessione tra i partecipanti (studiosi con diversi retroterra accademici, clinici, comunicatori, politici) e alla discussione del documento preparatorio. La partecipazione è solo per invitati.

14:00 - Breve relazione introduttiva
14:15 - Comunicazioni dei partecipanti
15:30 - Pausa caffè
16:00 - Discussione sul documento preparatorio
18:00 - Definizione dei punti di consenso
19:00 - Chiusura della sessione
19:30 - Cena di lavoro
21:00 - Conversazione informale al caminetto

Sabato 27 ottobre
Vaccinazioni e autismo: cosa ha permesso ad una bugia di sopravvivere e prosperare?

Sabato 27 sarà aperto ad un pubblico selezionato di medici e pediatri di base e di operatori della sanità pubblica. Il punto di partenza sarà una delle leggende urbane più pericolose tra quelle che circondano le vaccinazioni, cioè la presunta responsabilità dei vaccini nel provocare disturbi dello spettro autistico nei bambini. Si tratta di una delle "bufale" che ha fatto più presa sulle famiglie e che provoca una duplice serie di disastri. Da un lato, infatti, contribuisce fortemente ad alimentare l'obiezione vaccinale; dall'altro, è usata per giustificare una serie di trattamenti inutili (quando non dannosi e truffaldini) per i bambini affetti da disturbi autistici.

Prendendo le mosse dalla questione dell'autismo, cercheremo di esplorare con medici e operatori sanitari i bisogni delle famiglie, le domande inevase, le criticità nella comunicazione istituzionale.

09:00 - Introduzione
09:30 - Tavola Rotonda moderata da Gerardo D'Amico (invitato)
10:30 - Pausa caffè
11:00 - Questioni e commenti del pubblico
12:30 - Conclusioni
12:45 - Conversazione informale e rinfresco
13:30 - Chiusura della sessione

Attività di follow-up
Documento finale su "Vaccini e fake news"

Novembre: traduzione in inglese e editing del documento

Dicembre 2018- Febbraio 2019: pubblica consultazione online sul documento.

Marzo 2019: il documento è presentato ad Amsterdam alla General Assembly del progetto COMPARE e inviato ai servizi competenti della Commissione Europea

COMPARE Europa

Seminario di aggiornamento su Vaccini, Movimenti Anti-Vaccinazione e Comunicazione

Fiume Veneto (PN) – 27 Ottobre 2018

Emilio Mordini

9-10-2018

Seminario di aggiornamento su

VACCINI, MOVIMENTI ANTI-VACCINAZIONE E COMUNICAZIONE

DIRETTORE DEL CORSO: Dr Emilio Mordini

ENTE ORGANIZZATORE: Progetto Europeo COMPARE

COMPARE (*Collaborative management platform for detection and analyses of (re-) emerging and foodborne outbreaks in Europe*) è un progetto quinquennale promosso da trenta istituzioni europee, leader nella ricerca sulle malattie infettive emergenti; per l'Italia partecipano in COMPARE l'**Istituto Superiore di Sanità** e l'**Università di Bologna**. COMPARE è finanziato dal programma H2020 della Commissione Europea (Grant n. No. 643476) www.compare-europe.eu

DATA: Sabato 27 OTTOBRE 2018

LUOGO: Sala Conferenze de L'Ultimo Mulino
Via Molino 45 - 33080, Fiume Veneto (PN) - www.lultimomulino.com

PARTECIPAZIONE: riservata a medici e operatori sanitari, non sono previsti costi di iscrizione e partecipazione, si richiede registrazione con almeno 5 giorni di anticipo.

PATROCINIO (richiesto): Ministero della Salute, Ordine dei Medici di Pordenone, FNOMCEO

RAZIONALE DEL SEMINARIO:

Sino dall'introduzione del primo vaccino, con Jenner, la pratica vaccinale è stata oggetto di controversie. Tuttavia, dopo i grandi successi su scala mondiale nella seconda metà del secolo scorso e i progressi nelle conoscenze immunologiche, le diffidenze nei confronti dei vaccini sembravano per sempre superate. Non era così, l'inizio del nuovo millennio ha visto sorgere una nuova ondata di paure e apprensioni connesse ai vaccini. La riluttanza a vaccinarsi, e persino l'obiezione e il rifiuto vaccinale, hanno contagiato settori estesi della popolazione nelle società industriali e, in parte, anche in quelle a basso sviluppo economico. Mentre l'attivismo anti-vaccinale, i cosiddetti "movimenti anti vaccinazione", rimangono indubbiamente un fenomeno limitato, non altrettanto si può dire per una diffusa e vaga sfiducia, che spesso si concretizza in un' esitazione a vaccinarsi, soprattutto nel caso dei vaccini infantili e di quelli, come il vaccino antiinfluenzale, che non vengono percepiti sufficientemente "importanti". L'esitazione a vaccinarsi fa parte di una più vasta sfiducia nei confronti degli attori istituzionali e dell'industria farmaceutica, considerati poco affidabili e minati da conflitti di interesse. Questa crisi di fiducia si ripercuote inevitabilmente sulla sfera politica, che, per compiacere settori dell'elettorato, a volte finisce per far proprie le esitazioni anti-vaccinali. Il risultato è quello di creare un circolo vizioso in cui false credenze, pseudoscienza, cattiva medicina, demagogia, si rinforzano a vicenda.

La maggiore difficoltà ad affrontare questo problema nasce dal cambiamento epocale che si è verificato in questi anni nella percezione collettiva di cosa siano vero e falso. La rivoluzione post-moderna, che sembrava coinvolgere soltanto le élite intellettuali, si è invece dimostrata una tendenza di massa: sempre di meno le persone si interrogano sulla verità dei messaggi che ricevono, sempre di più sono interessate alla plausibilità narrativa della comunicazione. Ciò che rende credibile un messaggio non è il suo contenuto fattuale, ma il fatto che provveda una storia soddisfacente, che fornisca spiegazioni in accordo con la visione del mondo dell'ascoltatore. In questo senso, le storie diffuse dai movimenti anti-vaccini sono difficili da contraddire. Ad esempio, davanti all'emergere di una nuova malattia infettiva, la scienza non può che fornire spiegazioni parziali, punti di domanda, interrogativi; i sostenitori di teorie pseudoscientifiche propongono invece spiegazioni ricche ed articolate, storie moralmente significative in cui agiscono "cattivi" (solitamente le grandi case farmaceutiche e gli scienziati al loro soldo) e i "buoni" (loro stessi). Si può contrastare questo tipo di comunicazione soltanto facendo appello a informazione corretta e educazione? La risposta è no.

L'idea che pazienti, cittadini e famiglie abbiano semplicemente bisogno di informazione appropriata e educazione medico-scientifica è ingenua e parziale. Indubbiamente, informazione appropriata e educazione medico-scientifica – così come interventi giudiziari laddove si arrivi al ciarlatanismo – sono importanti, ma non sono sufficienti. La ricerca più recente sull'esitazione vaccinale dimostra come forme di diffidenza nei confronti della cosiddetta "medicina ufficiale" siano più frequenti negli strati economicamente avvantaggiati e che godono di una buona educazione scientifica. Questo vale a livello di singoli paesi e nell'insieme dei paesi sviluppati: ad esempio, non è un caso che, in Europa, il paese con un più alto tasso di esitazione vaccinale sia la Francia, che è anche uno dei paesi con un maggiore tasso di sviluppo e scolarità scientifica. Questo dato si sposa con quello analogo degli Stati Uniti, dove la California è lo stato in cui l'esitazione vaccinale, e i movimenti anti-

vaccinazione, sono maggiormente presenti. È necessario, quindi, andare oltre l'educazione per trovare un modo efficace per comunicare con pazienti e cittadini, con la consapevolezza che ciò di cui essi hanno bisogno non è soltanto informazione "vera", ma anche informazione che fornisca loro il senso e significato di ciò che vedono.

In questo scenario, il ruolo dei medici di base e del personale di sanità pubblica è cruciale. Da una parte, tutti gli studi hanno dimostrato che medici di famiglia e personale sanitario godono di grande stima e fiducia, essendo considerati dai cittadini la principale fonte di informazione sanitaria attendibile; dall'altra, la medicina di base e dei servizi è probabilmente l'osservatorio migliore per cogliere il sorgere e svilupparsi di nuove tendenze, paure, credenze e diffidenze nella popolazione. È allora giunto il momento per una piccola rivoluzione copernicana nella comunicazione sanitaria: invece di proseguire in una pratica "top-down", in cui la comunicazione è decisa da pochi esperti, perché non provare modelli "bottom-up", coinvolgendo medici di base e personale sanitario nell'elaborazione delle strategie di comunicazione?

Il Seminario di aggiornamento su VACCINI, MOVIMENTI ANTI-VACCINAZIONE E COMUNICAZIONE si propone di sviluppare un approccio "bottom-up" alla comunicazione su vaccini e vaccinazioni. La riunione, promossa nell'ambito del progetto europeo COMPARE, che coinvolge trenta centri di eccellenza europea dedicati alle malattie infettive ed epidemie emergenti, ha come obiettivo informare i medici di base e dei servizi e il personale sanitario sullo stato attuale del dibattito scientifico sulla comunicazione sanitaria e le cosiddette "fake news" e stimolare una riflessione dal basso, multidisciplinare, sulla comunicazione concernente vaccini e vaccinazioni.

Il seminario è articolato in due distinti momenti. Una prima parte sarà dedicata alle relazioni di un gruppo ristretto di docenti di formazione medica. Seguirà una tavola rotonda aperta al contributo del pubblico che vedrà la partecipazione di giornalisti, filosofi, sociologi, rappresentanti delle istituzioni. Al termine della tavola rotonda, un piccolo rifresco offrirà l'occasione per continuare in modo più informale e diretto la conversazione tra pubblico e relatori.

PROGRAMMA:

09:00 – 09:30 APERTURA E INTRODUZIONE AI LAVORI
Guido Lucchini, Presidente dell'Ordine dei Medici di Pordenone, Pordenone
Emilio Mordini, Progetto COMPARE, direttore del sotto progetto Risk Communication, medico psicoanalista, Parigi

09:30 – 10:30 VACCINI, COMUNICAZIONE, FAKE NEWS

RELAZIONI
Giorgio Simon, Direttore Generale dell'AAS 5 di Pordenone, Docente di Igiene generale ed applicata, Pordenone
Donato Greco, Laboratorio di Epidemiologia e Biostatistica dell'Istituto Superiore di Sanità, Consulente dell'OMS, Roma
Carlo Manfredi, Presidente Ordine dei Medici di Massa Carrara, Massa Carrara

10:30 – 11:00 PAUSA CAFFÈ

11:00 – 12:45 TAVOLA ROTONDA CON IL PUBBLICO ***"Vaccinazioni e autismo: cosa ha permesso ad una bugia di sopravvivere e prosperare?"***

MODERATORE: Gerardo D'Amico, vicecaporedattore RaiNews24 conduttore di "Basta la salute", Roma
PARTECIPANO:

- **Elena Fattori**, senatore, vicepresidente della commissione permanente Agricoltura del Senato, Roma
- **Alberto Garcia**, professore di Bioetica, cattedra UNESCO in Bioetica e Diritti Umani, Università Pontificia Regina Apostolorum, Roma
- **Alessandra Martini**, capo dell'unità RTD.E.3. "Combattere le malattie infettive e le epidemie emergenti" della Commissione Europea, Bruxelles
- **Giorgio Mustacchi**, Docente Emerito di Oncologia Medica, Università di Trieste, Trieste
- **Andrea Rubin**, sociologo, membro di "Observa Science in Society", Università di Salerno, Salerno
- **Fabrizio Turoldo**, professore di Filosofia Morale, Università Ca' Foscari di Venezia, Venezia

12:45 – 13:00 CONCLUSIONI
Emilio Mordini, Progetto COMPARE, direttore del sotto progetto Risk Communication, medico psicoanalista, Parigi

13:00 – 14:00 RINFRESCO E CONVERSAZIONE INFORMALE

14:00 CHIUSURA DELLA RIUNIONE

DOCENTI E RELATORI:

Donato Greco, Laboratorio di Epidemiologia e Biostatistica dell'Istituto Superiore di Sanità, Consulente dell'OMS, Roma

Elena Fattori, senatore, vicepresidente della commissione permanente Agricoltura del Senato, Roma

Alberto Garcia, professore di Bioetica, cattedra UNESCO in Bioetica e Diritti Umani, Università Pontificia Regina Apostolorum, Roma

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Carlo Manfredi, Presidente Ordine dei Medici di Massa Carrara, Massa Carrara

Alessandra Martini, capo unità RTD.E.3. "Combattere le malattie infettive e le epidemie emergenti" della Commissione Europea, Bruxelles

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Fabrizio Turoldo, professore di Filosofia Morale, Università Ca' Foscari di Venezia, Venezia

ORDINE PROVINCIALE DEI MEDICI-CHIRURGHI
E DEGLI ODONTOIATRI

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E-mail: info@omceo.pn.it – Codice Fiscale 80006850939

Prot. n. 2448

Pordenone,

Oggetto: Patrocinio.

EGR. DOTT. MORDINI EMILIO

SAN VITO AL TAGL.TO (PN)

In riferimento alla Vostra richiesta del 06.08.2018, si concede il patrocinio per il "WORKSHOP SU VACCINI, MOVIMENTI ANTI-VACCINAZIONE E COMUNICAZIONE" che si terrà nei giorni 26-27 ottobre 2018 presso "L'Ultimo Mulino" a Fiume Veneto (PN).

Cordiali saluti.

IL PRESIDENTE
Dott. Guido Lucchini

0008996-01/10/2018-GAB-GAB-P

Ministero della Salute

Ufficio di Gabinetto

Ministero della Salute
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299325582

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Comitato promotore
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Presidenza Consiglio Ministri
Ufficio del Cerimoniale
Roma
cerimonialedistato@pec.governo.it

Con riferimento alla richiesta, pervenuta allo scrivente Ufficio, si comunica la concessione del patrocinio del Ministero della Salute, al workshop "Vaccini, movimenti anti-vaccinazione e comunicazione" in programma a Fiume Veneto 26-27 ottobre p.v., *con esclusione del logo e del documento finale*, non avendo partecipato il Ministero alla stesura dello stesso

Al riguardo si precisa che la concessione del patrocinio di cui sopra, secondo i criteri adottati da questo Ministero, non è estendibile ad eventuali sponsorizzazioni e/o spazi pubblicitari commerciali, ovvero anche indirettamente, a operazioni finanziarie connesse all'iniziativa.

Si formulano i migliori auguri per la riuscita dell'iniziativa.

Il Vice Capo di Gabinetto
(Dott. Achille Iachino)

FG/fg

DOCUMENTO PREPARATORIO SU VACCINI E FAKE NEWS

1. BACKGROUND

In Aprile 2018, la Commissione Europea ha adottato una proposta di "Raccomandazione del Consiglio Europeo relativa al rafforzamento della cooperazione nella lotta contro le malattie prevenibili da vaccino" (https://goo.gl/mnPaVy). Il Consiglio Europeo - composto da i capi di Stato o di governo dei 28 Stati membri dell'UE, il presidente del Consiglio europeo e il presidente della Commissione europea – non svolge un'attività legislativa o esecutiva ma definisce le priorità e gli indirizzi politici generali dell'UE, attraverso raccomandazioni, dichiarazioni, orientamenti, e così via. La proposta di raccomandazione formulata dalla Commissione – accompagnata da un documento di lavoro che contiene una relazione di sintesi di una vasta consultazione condotta dalla Commissione in preparazione della proposta di raccomandazione (https://goo.gl/bmb9ez) – sarà discussa, e presumibilmente adottata, dal Consiglio Europeo nei prossimi mesi.

Il documento nel suo complesso (proposta di raccomandazione e relazione di sintesi) affronta numerosi punti, che coprono l'intero arco delle questioni sollevate dalle politiche vaccinali in Europa (inerenti alla ricerca medico-scientifica, gli aspetti giuridici e legislativi, il principio di sussidiarietà. le politiche e l'economia, la comunicazione sanitaria, gli aspetti costituzionali, i diritti dell'uomo, e altri ancora). Questo materiale della Commissione è il retroterra del documento VACCINI E FAKE NEWS che costituisce il testo preparatorio per il workshop su VACCINI, MOVIMENTI ANTI-VACCINAZIONE E COMUNICAZIONE.

INTRODUZIONE E TIMELINE

Uno dei problemi principali affrontati dalla Commissione nel documento è l'esitazione vaccinale, considerata nelle sue diverse componenti ed in base alle diverse ragioni che la possono motivare. Tra queste ragioni spicca quella collegata alla comunicazione in tema di vaccini e alla disinformazione (punti 1 e 2 del Pilastro 1, nella Relazione di Sintesi; raccomandazioni 6, 10, 18 e 19 della Proposta di Raccomandazione del Consiglio). Il documento su VACCINI E FAKE NEWS si occupa solo di questo aspetto e non entra in merito alle altre numerose, ed importanti, questioni connesse all'esitazione vaccinale. Lo scopo è quello di esaminare più in dettaglio gli argomenti sollevati dalla Commissione e di stimolare una discussione tra studiosi, ricercatori, medici, operatori della salute, amministratori sanitari, comunicatori, giornalisti, divulgatori, decisori politici, in vista della promozione di iniziative nazionali ed europee ben focalizzate e realistiche, che tengano tuttavia conto anche della complessità politica, culturale, sociale e psicologica del fenomeno delle fake news e, più in generale, dei processi di comunicazione nella società dell'informazione.

La bozza in italiano del documento VACCINI E FAKE NEWS, che è stata elaborata nell'ambito del progetto COMPARE, è ora sottoposta a una prima elaborazione e revisione da parte del gruppo di lavoro che si riunisce in occasione del workshop su VACCINI, MOVIMENTI ANTI-VACCINAZIONE E COMUNICAZIONE (26-27 ottobre), allargato per l'occasione ad alcuni studiosi, ricercatori, medici e comunicatori che, pur non potendo fisicamente essere presenti alla riunione, hanno manifestato il loro interesse all'iniziativa.

La versione così rielaborata sarà tradotta in inglese, pubblicata per una pubblica consultazione online sul sito www.riskcommunication-compare.eu e inviata per commenti e revisione alle organizzazioni dei principali gruppi di stakeholder europei, comprese le società scientifiche e professionali connesse con il tema delle vaccinazioni e le associazioni della stampa medica e scientifica. Il processo di consultazione sul documento si concluderà nel febbraio 2019. Il documento nella sua versione finale sarà quindi presentato a Copenaghen all' assemblea generale del progetto COMPARE (27 febbraio-1° marzo 2019, Technical University of Denmark) ed infine inviato ai servizi della Commissione Europea coinvolti nella realizzazione del sistema europeo di condivisione delle informazioni sulla vaccinazione (EVIS), preconizzato dal documento della Commissione.

STRUTTURA E ISTRUZIONI

La bozza di documento VACCINI E FAKE NEWS fa riferimento direttamente ai punti già citati del documento europeo nella sua versione italiana. Per ognuno di questi punti verranno proposte diverse opzioni di ricerca scientifica e di politica in tema di comunicazione sui vaccini. Non si tratta quasi mai di opzioni tra loro alternative, quanto di una diversa accentuazione e della scelta di differenti priorità. Un ultimo avvertimento: queste opzioni sono state preselezionate in base alla filosofia generale del progetto COMPARE, quindi non pretendono di essere esaustive o di coprire l'intero spettro delle possibili politiche.

DOCUMENTO PREPARATORIO SU VACCINI E FAKE NEWS

2. SCHEDE SUL PROGETTO COMPARE

Questa pagina presenta le caratteristiche generali del progetto COMPARE da un punto di vista informazionale e i principi teorici che uniformano l' health risk communication in COMPARE. Ulteriori informazioni le potrà trovare sul sito del progetto COMPARE (http://www.compare-europe.eu/) e su quello (in costruzione) del tool box Health Risk Communication (www.riskcommunication-compare.eu)

SE NON E' INTERESSATO PASSI DIRETTAMENTE ALLA PAGINA SUCCESSIVA

SCHEDA 1: COMPARE

COMPARE è un progetto di "Big Data Biology" che fonde " *sequence-based pathogen data in combination with other contextual metadata (clinical, microbiological, epidemiological, additional gene- and transcriptome-based analyses and other data) integrating both publicly available and confidential data*". Le sue principali caratteristiche sono

1) **Actionable Information:** COMPARE integra tra loro un'enorme quantità di dati disparati, strutturati e non strutturati, con l'obiettivo non tanto di individuare catene causali o identificare processi quanto di cogliere pattern che possano guidare le scelte dei decisori in caso di epidemie emergenti. Tendenzialmente la piattaforma COMPARE disintermedia i processi decisionali in caso di emergenze epidemiche perché rende le decisioni possibili direttamente sulla base delle informazioni prodotte dalla piattaforma stessa, senza un'ulteriore elaborazione da parte di "esperti". In prospettiva, il valore dell'informazione in COMPARE non è dato dalle nuove conoscenze che apporta ma dalla capacità o meno di orientare le decisioni.

2) **Distributed Cognition:** in COMPARE la produzione di conoscenza è eterogenea e distribuita, integrando conoscenza umana ad intelligenza artificiale per cui una parte dei processi analitici non sono più guidati dai ricercatori, ma originano direttamente dagli algoritmi della piattaforma. Le conoscenze sono prodotte in parallelo sia applicando le tradizionali metodiche di analisi statistica, sia sfruttando le più moderne tecnologie di predictive analytics. L'approccio statistico convenzionale è basato sull'investigazione di parametri preventivamente decisi da esperti (un esempio tipico sono le cosiddette "variabili demografiche" o le statistiche di morbilità e mortalità), attraverso domande focalizzate e calcoli attuariali. La statistica tradizionale procede da un modello teorico che genera una serie di questioni usate per collezionare le informazioni e operare previsioni. Lo schema delle predictive analytics è opposto: si collezionano enormi quantità di dati eterogenei, senza alcun altro criterio che quello della loro disponibilità, dopo di che, applicando in maniera automatica specifici algoritmi, si costruiscono le questioni a cui quei dati rispondono. In tal modo non si ricercano associazioni dotate di valore esplicativo ma pattern ricorrenti. La previsione non riguarda le probabilità di occorrenza di un evento – come nell' approccio statistico tradizionale – ma l'identificazione precoce di un pattern (rigorosamente parlando, le predictive analytics non predicono ma scoprono). L'intero processo dipende criticamente dal contesto e dalla qualità dei dati non strutturati (ad esempio dall'informazione di natura giornalistica o proveniente dai social media) e tende a sviluppare livelli di imprevedibilità simili a quelli esibiti dalla mente umana.

3) **Data Storytelling:** l'informazione in grado di generare azione prodotta attraverso processi di cognizione distribuita deve poi essere presentata in un modo comprensibile ai decisori, proprio perché possa diventare immediatamente operativa. L'informazione – generata in forma digitale – deve essere tradotta in termini analogici e organizzata attraverso rappresentazioni congruenti all'apparato sensorio umano (grafici, descrizioni verbali e visuali, e così via), in altre parole, l'informazione deve essere "raccontata". La rappresentabilità e comprensibilità dell'informazione prodotta rappresenta una delle sfide principali della data science e lo sviluppo odierno delle tecniche di data representation è stato paragonato concettualmente all'introduzione del metodo della partita doppia nell'Europa del Rinascimento e sta avendo lo stesso impatto rivoluzionario. Nell'ambito del progetto COMPARE la data representation deve permettere di trasferire ai vari stakeholder del progetto (istituzioni di sanità pubblica, decisori politici, comunicatori) l'informazione generata dalla piattaforma raccogliendo e fondendo i dati eterogenei connessi all'emergere di nuove epidemie.

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SCHEDA 2: PRINCIPI DELL'HEALTH RISK COMMUNICATION NEL PROGETTO COMPARE

PRINCIPIO 1: SOVRACCARICO INFORMATIVO - Nella società dell'informazione non manca la conoscenza dei fatti, ma la possibilità di discernere quali tra essi sono rilevanti.

La quantità di informazione prodotta e la sua continua crescita esponenziale eccedono largamente la capacità di elaborazione della mente umana sia dei singoli, sia dei gruppi e della società umana nel suo complesso. Questo sovraccarico di informazione non nasce soltanto da una maggiore efficienza e capienza dei mezzi di comunicazione ma anche – e soprattutto – dalla capacità crescente di tradurre in termini quantitativi e computabili tutte le informazioni una volta considerate unicamente qualitative. A fronte di questa rivoluzione, la società umana continua a ragionare in termini analogici e crede che l'informazione digitale, quantitativa, abbia lo stesso valore educativo e formativo dell'informazione qualitativa. Non è evidentemente vero, per di più, oltre un certo livello di carico, il crescere dell'informazione quantitativa non solo non corrisponde ad un aumento di conoscenza soggettiva ma, addirittura, genera una perdita di capacità di comprensione. Oggi la disinformazione riguarda molto parzialmente verità o falsità delle notizie. Nel contesto attuale qualsiasi informazione – anche la più fattualmente vera – può assumere la funzione di fake news e disinformare, proprio perché può provocare una perdita di conoscenza invece che un aumento. Le pseudo verità sono spesso verità ricontestualizzate in modo capzioso oppure, più semplicemente, verità giustapposte l'una alle altre, senza alcun criterio.

PRINCIPIO 2: MANCANZA DI SIGNIFICATO- La crescente disconnessione tra fatti, conoscenze e valori, produce confusione, disorientamento e confabulazione.

Le informazioni sono troppe per avere ancora un qualche significato e per aiutare a prendere decisioni. I singoli, i gruppi e la società nel suo insieme sviluppano forme di confabulazione compensativa, quasi una sindrome di Korsakoff collettiva. Ci si difende dal sovraccarico informativo, selezionando e riorganizzando le informazioni non più in base al loro valore dichiarativo (cioè riferentesi a fatti verificabili o falsificabili che dir si voglia) ma soltanto per la loro plausibilità e coerenza narrativa. Le informazioni sono percepite tanto più plausibili quanto più possono essere riorganizzate in serie causali dotate di significato e valore per il singolo e per il gruppo. Sono percepite invece narrativamente coerenti se, e in quanto, confermano le esperienze, le credenze, la visione del mondo e i bisogni di trascendenza del recettore dell'informazione. La componente di meta-comunicazione, insita in ogni comunicazione, diventa l'elemento principale del processo comunicativo, che serve sempre di meno a trasmettere informazione e sempre di più a stabilire, consolidare o guidare le regole della comunicazione stessa. Come in una myse en abime (la tecnica pittorica nella quale un'immagine contiene una copia di sé stessa, ripetendo la sequenza apparentemente all'infinito) la comunicazione diventa autoreferente e crea profezie che si autoavverano.

PRINCIPIO 3: VIRTUALIZZAZIONE: Il mondo digitale è un mondo "asincronicamente simultaneo" dove tutto accade nella stessa unità immobile di tempo e spazio ed è apparentemente reversibile, come in un sogno o in un delirio.

La simultaneità digitale contribuisce ad aumentare il sovraccarico informazionale e la perdita di significato dell'informazione stessa, perché gli esseri umani hanno bisogno di profondità spaziale e temporale e della sensazione di irreversibilità per conferire senso all'informazione che ricevono e alle scelte che operano. La simultaneità digitale provoca una progressiva "virtualizzazione" dell'esperienza. La società digitale tende ad essere un palcoscenico - o un video game - globale dove tutti, singoli e collettività, si mettono in scena e sono spettatori di sé stessi: una recita che sembra potersi ripetere in eterno, senza mai una vera conclusione ma solo un momentaneo "end game". Ruoli, funzioni, compiti e responsabilità diventano reversibili ed interscambiabili. Autorità e autorevolezza - che nelle società predigitali si costruivano nel tempo e traevano origine dalle qualità riconosciute ad una persona, naturale o giuridica (o ad un brand) – oggi si generano, dissolvono e rigenerano, in relazione all' ampiezza e la qualità dei network che, come in un caleidoscopio, la rete continuamente produce e distrugge. Solo apparentemente la figura odierna dell'influencer è assimilabile all'opinion leader del passato: mentre l'opinion leader operava attraverso processi di persuasione, seduzione e imitazione, l'influencer sfrutta meccanismi molto più arcaici di identificazione proiettiva. La comunicazione persuasiva nel mondo digitale tende così ad essere di tipo psicotico e ciò spiega anche perché le tradizionali forme di social marketing, che hanno fatto parte delle risorse della medicina pubblica sino dalla metà del secolo scorso, sono oggi spesso inefficaci.

La Piattaforma COMPARE

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DOCUMENTO PREPARATORIO SU VACCINI E FAKE NEWS

3. QUESTIONI SULLE RACCOMANDAZIONI

"Raccomandazione del Consiglio Europeo relativa al rafforzamento della cooperazione nella lotta contro le malattie prevenibili da vaccino" https://goo.gl/mnPaVy

1. La raccomandazione n.6 chiede di "aumentare le attività di comunicazione e di sensibilizzazione in merito ai benefici della vaccinazione". Si tratta di una raccomandazione di cui si capisce bene la logica ma che non è scevra di rischi, proprio perché la situazione di information overload genera, o perlomeno facilita, la disinformazione. SCEGLIERE UN'OPZIONE PRIORITARIA O INDICARNE UNA NUOVA

- ◯ **Opzione 1:** bisogna migliorare la qualità piuttosto che la quantità della comunicazione. Questa opzione richiede di mettere parzialmente in secondo piano le attività di social marketing sui vaccini e quelle puramente informative ed investire soprattutto nelle attività di ascolto, segmentazione culturale e comprensione profonda del fenomeno dell'esitazione vaccinale
- ◯ **Opzione 2:** bisogna puntare sulla nozione di "sensibilizzazione", con l'obiettivo di individuare gli stimoli "sensibilizzanti" e contrastare quelli "desensibilizzanti". Questa opzione presuppone che vengano identificati, nelle diverse aree culturali europee, gli effetti di contesto più importanti, che possono mitigare o moltiplicare l'impatto della comunicazione
- ◯ Altro (specificare)

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2. La raccomandazione n.6 prosegue suggerendo "la presentazione di prove scientifiche per contrastare la diffusione della disinformazione, anche tramite strumenti digitali e partenariati con la società civile e altri portatori di interessi pertinenti". Questa raccomandazione implicitamente ipotizza un rapporto quasi lineare tra "prove scientifiche" e "contrasto della diffusione della disinformazione": un tale rapporto è tutt'altro che provato, vi sono anzi fondate ragioni per ritenere che nel mondo di oggi si tratti di un'associazione debole. Ciò detto, è chiaro che lo spirito della raccomandazione è quello di favorire non solo una corretta informazione sui vaccini ma anche la formazione dei cittadini allo spirito della scienza.
ASSEGNARE UNA PRIORITA' A CIASCUNA OPZIONE

Opzione 1: per realizzare lo spirito della raccomandazione è importante più ancora che educare i cittadini alla corretta valutazione delle prove scientifiche, educare gli scienziati, i ricercatori e i divulgatori scientifici a comunicare un'immagine corretta della scienza, non gravata da arroganza e presupponenza. La realizzazione di questa raccomandazione richiede quindi una "co-evoluzione" di società civile e società scientifica, attraverso l'identificazione di momenti dialogo e di formazione comuni.

Opzione 2: il linguaggio della scienza diventa comprensibile ed efficace da un punto di vista comunicativo soltanto quando si riesce ad ibridare con altri discorsi, quale, ad esempio, quello artistico; si tratta di una lezione che alcune discipline scientifiche come la fisica hanno da anni compreso e fruttuosamente applicato. È necessaria quindi una collaborazione tra discipline mediche, sanità pubblica, scienze sociali e discipline artistiche con l'obiettivo di "re-inventare" un linguaggio efficace per presentare le "prove scientifiche".

Opzione 3: questa raccomandazione richiede una conoscenza più approfondita sulla natura ed origine della disinformazione. Una disinformazione premeditata, creata ad hoc per scopi criminali o comunque illeciti, è strutturalmente diversa da una disinformazione che nasce da ideali filosofici e morali sbagliati o ma assimilati o da una disinformazione generata non intenzionalmente dalle dinamiche proprie del mondo digitale e della rete. Il tipo di prove scientifiche che possono essere convincenti e il linguaggio più efficace da adottare sono presumibilmente molto diversi in queste differenti situazioni, sfortunatamente però esistono pochi studi che affrontano questo problema.

Opzione 4: questa raccomandazione è di difficile realizzazione perché si scontra con un contesto in cui le "prove scientifiche" sono trascurate in numerose aree della medicina e della sanità pubblica. Il paese in Europa con un tasso più alto di esitazione vaccinale è la Francia che è anche il paese europeo in cui il sistema sanitario nazionale rimborsa sino al 30% delle spese per i farmaci omeopatici. In gran parte dei paesi europei, gli ordini e le associazioni professionali tollerano pratiche mediche di dubbia efficacia e per le quali non esiste nessuna prova scientifica. In un contesto simile, prima ancora che diffondere le "prove scientifiche per contrastare la diffusione della disinformazione" sui vaccini, bisognerebbe condurre una vasta operazione di ricognizione ed analisi delle ragioni della diffusione delle cosiddette "medicine alternative", perché esse costituiscono il retroterra dell'esitazione vaccinale

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3. In ultimo la raccomandazione 6 suggerisce anche "il coinvolgimento degli operatori sanitari, dei portatori di interessi del settore dell'istruzione, delle parti sociali e dei media come moltiplicatori, per non abbassare il livello di guardia e aumentare la fiducia nell'immunizzazioni". Il coinvolgimento di diversi stakeholder nel processo di comunicazione vaccinale si può realizzare in diversi modi e coinvolgere diversi attori. SCEGLIERE UN'OPZIONE PRIORITARIA O INDICARNE UNA NUOVA

- ◯ **Opzione 1:** probabilmente il gruppo di stakeholder su cui vale la pena di puntare maggiormente è quello degli operatori sanitari, sia perché si tratta del gruppo più omogeneo e meglio identificabile, sia perché in alcune occasioni, come nella pandemia influenzale del 2009 e le epidemie degli anni successivi, ha rappresentato un fattore di resistenza alle vaccinazioni. Sono quindi necessari programmi di ricerca focalizzati su questo gruppo di stakeholder e sui diversi segmenti che lo compongono, anche coinvolgendo le associazioni professionali ed ordinistiche.
- ◯ **Opzione 2:** il settore dell'istruzione dovrebbe avere una priorità proprio perché nel caso dei vaccini non si tratta soltanto di promuovere campagne di educazione alla salute ma di educare ad un approccio più consapevole all'informazione scientifica. Devono quindi esser previsti specifici programmi di educazione per scuole primarie e secondarie.
- ◯ **Opzione 3:** per quanto sia importante la scelta degli attori da coinvolgere, ancora più importante è approfondire le metodologie da usare. Il modello partecipativo, che è stato sviluppato nel corso degli ultimi decenni per il coinvolgimento dei cittadini nelle scelte di politica tecnologica, non può probabilmente essere trasferito tale e quale alla comunicazione sui vaccini. Sarà quindi necessario incentivare la ricerca sugli aspetti metodologici e sull'identificazione di modi specifici per il coinvolgimento delle parti sociali.
- ◯ Altro (specificare)

4. La raccomandazione n.10 al suo punto c. invita a "monitorare la disinformazione online sui vaccini e sviluppare strumenti di informazione e orientamenti basati su dati concreti, per aiutare gli Stati membri a contrastare l'esitazione vaccinale, in accordo con la comunicazione della Commissione relativa al contrasto della disinformazione online". Si compone, quindi, di due suggerimenti tra loro connessi, "monitorare la disinformazione online" e "sviluppare strumenti di informazione e orientamenti basati su dati concreti". SCEGLIERE UNA DELLE DUE OPZIONI

- ◯ **Opzione 1:** monitorare la disinformazione online è la principale priorità, visto che a tutt'oggi non esiste una banca dati europea su questo fenomeno. Sarebbe necessario promuovere la nascita di un osservatorio europeo su Vaccini e Fake News che 1) sorvegli, collezioni, segmenti e cataloghi in tempo reale e nei diversi stati membri la produzione di disinformazione sui vaccini; 2) identifichi precocemente e analizzi le tendenze della disinformazione; 3) identifichi i network economici e gli interessi materiali sottostanti alla produzione intenzionale e/o criminale di disinformazione sui vaccini.
- ◯ **Opzione 2:** andrebbe incentivata la ricerca di strumenti digitali per contrastare l'esitazione vaccinale. In parallelo alle applicazioni più tradizionali per favorire l'accettazione dei vaccini e promuovere informazione corretta, una maggiore attenzione andrebbe prestata anche al settore del gaming e delle applicazioni multimediali: si tratta di aree di interesse che potrebbero avere un impatto significativo sulle giovani generazioni, difficilmente raggiunte da strumenti digitali più convenzionali.

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5. La raccomandazione n.16 chiede alla Commissione e agli stati membri di "investire nella ricerca nelle scienze comportamentali e sociali sui fattori determinanti dell'esitazione vaccinale in diversi sottogruppi della popolazione e tra gli operatori sanitari". SCEGLIERE UN'OPZIONE PRIORITARIA O INDICARNE UNA NUOVA

- ◯ **Opzione 1:** investimenti sulla ricerca in questo settore sono una priorità, essi devono comprendere non soltanto la ricerca applicativa empirica (indagini, questionari, ricerca di indicatori, ecc.) ma anche la ricerca di base con la creazione di modelli teorici nuovi, adeguati alla rivoluzione digitale e al mondo online
- ◯ **Opzione 2:** è importante promuovere sia una ricerca quantitativa, che miri all'identificazione di indicatori comportamentali efficaci da applicare su scala nazionale ed europea, sia una ricerca di tipo qualitativo che permetta di indentificare i temi sottostanti all'esitazione vaccinale. In particolare, bisognerebbe promuovere studi osservazionali ed etnografici su diversi segmenti di esitazione vaccinale in diverse regioni europee.
- ◯ **Opzione 3:** in parallelo alla ricerca comportamentale e sociale tradizionale, il fenomeno dell'esitazione vaccinale dovrebbe essere studiato anche attraverso le tecniche di data science. Andrebbe promossa la nascita di centri di aggregazione e fusione dati in questo settore, con l'obiettivo di identificare l'emergere di pattern di disinformazione e di contrastarli precocemente
- ◯ Altro (specificare)

6. La raccomandazione n.19 esorta a creare "una coalizione per la vaccinazione al fine di riunire le associazioni europee di operatori sanitari, oltre alle associazioni di studenti nel settore, affinché si impegnino a fornire al pubblico informazioni accurate, a sfatare i miti e a scambiare le migliori pratiche". SCEGLIERE UN'OPZIONE PRIORITARIA O INDICARNE UNA NUOVA

- ◯ **Opzione 1**: una futura "coalizione per la vaccinazione" deve comprendere anche divulgatori, scrittori e giornalisti scientifici, comunicatori professionali nonché blogger e influencer nel settore della salute. È invece raccomandabile che non includa in modo organico interessi industriali e del mondo farmaceutico.
- ◯ **Opzione 2:** il compito fondamentale di questa coalizione dovrebbe essere la creazione di una banca dati di buone pratiche, la loro diffusione e la definizione di una metodologia per il confronto sistematico e la valutazione delle pratiche di comunicazione sui vaccini
- ◯ Altro (specificare)

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DOCUMENTO PREPARATORIO SU VACCINI E FAKE NEWS

4. QUESTIONI SULLA RELAZIONE DI SINTESI

Relazione di sintesi - https://goo.gl/bmb9ez

7. I suggerimenti raccolti dalla Commissione nel corso della sua attività di consultazione pubblica sui vaccini, riuniti nella relazione di sintesi, comprendono suggerimenti per una MIGLIORE COMUNICAZIONE IN MATERIA DI SICUREZZA ED EFFICACIA DEI VACCINI (pilastro 1). ASSEGNARE LA PRIORITA' A CIASCUN SUGGERIMENTO

- [ ] fornire un approccio incentrato sul paziente nel dialogo con i professionisti sanitari;
- [ ] sviluppare programmi ed eventi di sensibilizzazione a livello locale;
- [ ] comunicare direttamente con i genitori, anche durante i corsi prenatali;
- [ ] introdurre mediatori di fiducia nei gruppi vulnerabili (ad esempio comunità Rom, rifugiati);
- [ ] migliorare la comprensione degli studi sulla sicurezza dei vaccini (ad es. infografica, video, volantini);
- [ ] aprire il dibattito tra sostenitori e oppositori ai fini di un equilibrio tra benefici e rischi;
- [ ] verificare proattivamente i fatti riguardo alle notizie false e ai conflitti di interesse;
- [ ] distinguere i vaccini essenziali (ad es. contro la poliomielite) da quelli volontari (ad es. contro l'influenza);
- [ ] coinvolgere le donne, in quanto principali responsabili dell'assistenza ai bambini e agli anziani;
- [ ] coinvolgere personalità celebri nella sensibilizzazione alla vaccinazione;
- [ ] esporre immagini di malattie prevenibili da vaccino, come avviene per i pacchetti di sigarette;
- [ ] sensibilizzare il pubblico all'immunità di gregge e alla responsabilità individuale;

8. ATTRIBUIRE UN VALORE A CIASCUNO DI QUESTI SUGGERIMENTI

	FONDAMENTALE	IMPORTANTE	POTREBBE ESSERE UTILE	PROBABILMENTE INUTILE	DANNOSO
fornire un approccio incentrato sul paziente nel dialogo con i professionisti sanitari;	○	○	○	○	○
sviluppare programmi ed eventi di sensibilizzazione a livello locale;	○	○	○	○	○

9

	FONDAMENTALE	IMPORTANTE	POTREBBE ESSERE UTILE	PROBABILMENTE INUTILE	DANNOSO
comunicare direttamente con i genitori, anche durante i corsi prenatali;	○	○	○	○	○
introdurre mediatori di fiducia nei gruppi vulnerabili (ad esempio comunità Rom, rifugiati);	○	○	○	○	○
migliorare la comprensione degli studi sulla sicurezza dei vaccini (ad es. infografica, video, volantini);	○	○	○	○	○
aprire il dibattito tra sostenitori e oppositori ai fini di un equilibrio tra benefici e rischi;	○	○	○	○	○
verificare proattivamente i fatti riguardo alle notizie false e ai conflitti di interesse;	○	○	○	○	○
distinguere i vaccini essenziali (ad es. contro la poliomielite) da quelli volontari (ad es. contro l'influenza);	○	○	○	○	○
coinvolgere le donne, in quanto principali responsabili dell'assistenza ai bambini e agli anziani;	○	○	○	○	○
coinvolgere personalità celebri nella sensibilizzazione alla vaccinazione;	○	○	○	○	○
esporre immagini di malattie prevenibili da vaccino, come avviene per i pacchetti di sigarette;	○	○	○	○	○
sensibilizzare il pubblico all'immunità di gregge e alla responsabilità individuale;	○	○	○	○	○

10

* 9. fornire un approccio incentrato sul paziente nel dialogo con i professionisti sanitari;

- [ ] SBAGLIATO
- [ ] UTILE MA GENERICO
- [ ] D'ACCORDO MA COME?
- [ ] IMPORTANTE
- [ ] Altro (specificare)

* 10. sviluppare programmi ed eventi di sensibilizzazione a livello locale;

- ( ) SBAGLIATO
- ( ) UTILE MA GENERICO
- ( ) CHI DOVREBBE SVILUPPARLI?
- ( ) IMPORTANTE
- ( ) Altro (specificare)

* 11. comunicare direttamente con i genitori, anche durante i corsi prenatali;

- ( ) SBAGLIATO
- ( ) LO SI FA GIA'
- ( ) PARZIALMENTE UTILE
- ( ) INSERIRE IN TUTTI I PROGRAMMI DI CONTRASTO ALL'ESITAZIONE VACCINALE
- ( ) Altro (specificare)

12. introdurre mediatori di fiducia nei gruppi vulnerabili (ad esempio comunità Rom, rifugiati);

- ( ) SBAGLIATO
- ( ) LO SI FA GIA'
- ( ) NON LO SI FA E LO SI DOVREBBE INVECE FARE
- ( ) TROPPO DIFFICILE E COSTOSO PER I BENEFICI CHE POTREBBE APPORTARE
- ( ) Altro (specificare)

11

13. migliorare la comprensione degli studi sulla sicurezza dei vaccini (ad es. infografica, video, volantini);

- ◯ QUESTI STRUMENTI DI COMUNICAZIONE SONO INEFFICACI OGGI
- ◯ NON E' CERTO UNA PRIORITA' MA PUO' SERVIRE
- ◯ TEMPO E RISORSE SPRECATE
- ◯ MOLTO UTILE
- ◯ Altro (specificare)

14. aprire il dibattito tra sostenitori e oppositori ai fini di un equilibrio tra benefici e rischi

- ◯ UNA DELLE PEGGIORI STUPIDAGGINI CHE SI POSSONO FARE
- ◯ SOLO CON ALCUNI GRUPPI ESITANTI MA MAI CON GLI ATTIVISTI ANTI VACCINAZIONE
- ◯ SOLO CON GLI OPINION LEADER ANTI VACCINAZIONE
- ◯ POTREBBE ESSERE UTILISSIMO
- ◯ Altro (specificare)

15. verificare proattivamente i fatti riguardo alle notizie false e ai conflitti di interesse

- ◯ TEMPO PERSO
- ◯ UTILE PER EVITARE L'ACCUSA DI ESSERE PARZIALE
- ◯ ANDREBBE FATTO PERCHE' NON SEMPRE SI TRATTA DI MENZOGNE
- ◯ COMUNQUE NON SERVE A RIDURRE L'ESITAZIONE
- ◯ Altro (specificare)

16. distinguere i vaccini essenziali (ad es. contro la poliomielite) da quelli volontari (ad es. contro l'influenza);

- ◯ L'IMPORTANZA DI UN VACCINO DIPENDE DAL CONTESTO E DAL SOGGETTO
- ◯ SAREBBE UN ERRORE, TUTTI I VACCINI SONO UTILI
- ◯ E' UN SUGGERIMENTO GIUSTO CHE POTREBBE MIGLIORARE LA COMUNICAZIONE
- ◯ SE LO SI FACESSE DI ROUTINE SI RISOLVEREBBERO MOLTI PROBLEMI
- ◯ Altro (specificare)

12

17. coinvolgere le donne, in quanto principali responsabili dell'assistenza ai bambini e agli anziani,

- ◯ GIUSTO
- ◯ ERA FORSE VERO NEL PASSATO MA OGGI NON HA PIU' SENSO
- ◯ IL NETWORK DELLE MAMME E' FONDAMENTALE PER CONTRASTARE L'ESITAZIONE
- ◯ D'ACCORDO MA COME?
- ◯ Altro (specificare)

18. coinvolgere personalità celebri nella sensibilizzazione alla vaccinazione;

- ◯ LO SI FA GIA' MA NON SERVE A MOLTO
- ◯ UTILISSIMO, ANDREBBE FATTO CON REGOLARITA'
- ◯ POTREBBE SERVIRE CON I GIOVANI
- ◯ E' EFFICACE CON GLI ANZIANI MA NON CON GIOVANI
- ◯ Altro (specificare)

19. esporre immagini di malattie prevenibili da vaccino, come avviene per i pacchetti di sigarette;

- ◯ IRREALISTICO
- ◯ POTREBBE ESSERE UTILE
- ◯ NON SERVIREBBE A NULLA SE NON A STIGMATIZZARE I MALATI
- ◯ OTTIMA IDEA
- ◯ Altro (specificare)

20. sensibilizzare il pubblico all'immunità di gregge e alla responsabilità individuale

- ◯ L'APPELLO ALLA RESPONSABILITA INDIVIDUALE SERVE MOLTO POCO
- ◯ L' APPELLO ALLA RESPONSABILITA INDIVIDUALE E' UTILE SOLO SE RIGUARDA LE PERSONE PIU' VICINE E I FAMIGLIARI
- ◯ L' APPELLO ALLA RESPONSABILITA INDIVIDUALE DEVE ESSERE AL CENTRO DI TUTTE LE CAMPAGNE DI SENSIBILIZZAZIONE
- ◯ PUO' SERVIRE FORSE CON GLI ADULTI MA NON CON I GIOVANI
- ◯ Altro (specificare)

13

DOCUMENTO PREPARATORIO SU VACCINI E FAKE NEWS

5. FINE DEL DOCUMENTO

Grazie per aver collaborato alla revisione di questo documento. La preghiamo di indicare di seguito il suo nome ed email.

* 21. Indirizzo

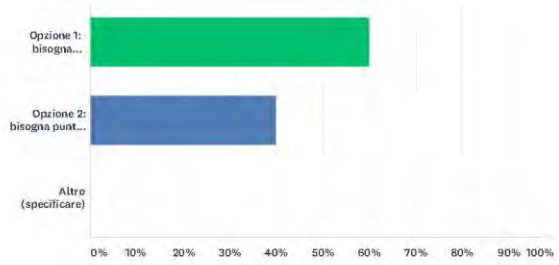
Nome e Cognome	
Indirizzo e-mail	

14

DOCUMENTO PREPARATORIO SU VACCINI E FAKE NEWS SurveyMonkey

Q1 La raccomandazione n.6 chiede di "aumentare le attività di comunicazione e di sensibilizzazione in merito ai benefici della vaccinazione". Si tratta di una raccomandazione di cui si capisce bene la logica ma che non è scevra di rischi, proprio perché la situazione di information overload genera, o perlomeno facilita, la disinformazione. SCEGLIERE UN'OPZIONE PRIORITARIA O INDICARNE UNA NUOVA

Answered: 10 Skipped: 1

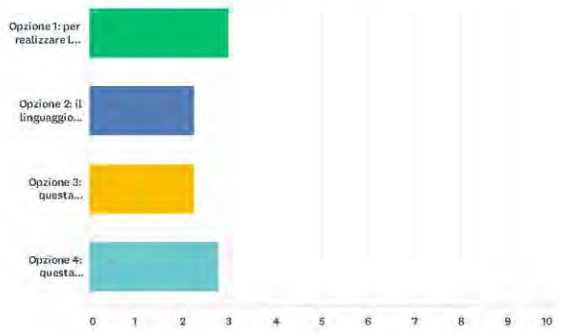


OPZIONI DI RISPOSTA		RISPOSTE
Opzione 1: bisogna migliorare la qualità piuttosto che la quantità della comunicazione. Questa opzione richiede di mettere parzialmente in secondo piano le attività di social marketing sui vaccini e quelle puramente informative ed investire soprattutto nelle attività di ascolto, segmentazione culturale e comprensione profonda del fenomeno dell'esitazione vaccinale	60,00%	6
Opzione 2: bisogna puntare sulla nozione di "sensibilizzazione", con l'obiettivo di individuare gli stimoli "sensibilizzanti" e contrastare quelli "desensibilizzanti". Questa opzione presuppone che vengano identificati, nelle diverse aree culturali europee, gli effetti di contesto più importanti, che possono mitigare o moltiplicare l'impatto della comunicazione	40,00%	4
Altro (specificare)	0,00%	0
TOTALE		10

#	ALTRO (SPECIFICARE)	DATA
	Non ci sono risposte.	

Q2 La raccomandazione n.6 prosegue suggerendo "la presentazione di prove scientifiche per contrastare la diffusione della disinformazione, anche tramite strumenti digitali e partenariati con la società civile e altri portatori di interessi pertinenti". Questa raccomandazione implicitamente ipotizza un rapporto quasi lineare tra "prove scientifiche" e "contrasto della diffusione della disinformazione": un tale rapporto è tutt'altro che provato, vi sono anzi fondate ragioni per ritenere che nel mondo di oggi si tratti di un'associazione debole. Ciò detto, è chiaro che lo spirito della raccomandazione è quello di favorire non solo una corretta informazione sui vaccini ma anche la formazione dei cittadini allo spirito della scienza. ASSEGNARE UNA PRIORITA' A CIASCUNA OPZIONE

Answered: 10 Skipped: 1

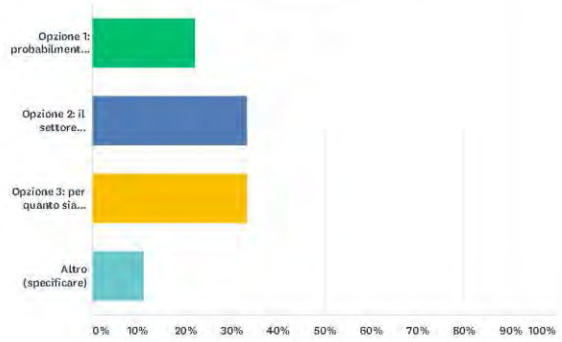


	1	2	3	4	TOTALE	PUNTEGGIO
Opzione 1: per realizzare lo spirito della raccomandazione è importante più ancora che educare i cittadini alla corretta valutazione delle prove scientifiche, educare gli scienziati, i ricercatori e i divulgatori scientifici a comunicare un'immagine corretta della scienza, non gravata da arroganza e presupponenza. La realizzazione di questa raccomandazione richiede quindi una "co-evoluzione" di società civile e società scientifica, attraverso l'identificazione di momenti dialogo e di formazione comuni.	55,56% 5	11,11% 1	11,11% 1	22,22% 2	9	3,00
Opzione 2: il linguaggio della scienza diventa comprensibile ed efficace da un punto di vista comunicativo soltanto quando si riesce ad ibridare con altri discorsi, quale, ad esempio, quello artistico, si tratta di una lezione che alcune discipline scientifiche come la fisica hanno da anni compreso e fruttuosamente applicato. È necessaria quindi una collaborazione tra discipline mediche, sanità pubblica, scienze sociali e discipline artistiche con l'obiettivo di "re-inventare" un linguaggio efficace per presentare le "prove scientifiche".	12,50% 1	25,00% 2	37,50% 3	25,00% 2	8	2,25
Opzione 3: questa raccomandazione richiede una conoscenza più approfondita sulla natura ed origine della disinformazione. Una disinformazione premeditata, creata ad hoc per scopi criminali o comunque illeciti, è strutturalmente diversa da una disinformazione che nasce da ideali filosofici e morali sbagliati o mal assimilati o da una disinformazione generata non intenzionalmente dalle dinamiche proprie del mondo digitale e della rete. Il tipo di prove scientifiche che possono essere convincenti e il linguaggio più efficace da adottare sono presumibilmente molto diversi in queste differenti situazioni, sfortunatamente però esistono pochi studi che affrontano questo problema.	25,00% 2	12,50% 1	25,00% 2	37,50% 3	8	2,25

Opzione 4. questa raccomandazione è di difficile realizzazione perché si scontra con un contesto in cui le "prove scientifiche" sono trascurate in numerose aree della medicina e della sanità pubblica. Il paese in Europa con un tasso più alto di esitazione vaccinale è la Francia che è anche il paese europeo in cui il sistema sanitario nazionale rimborsa sino al 30% delle spese per i farmaci omeopatici. In gran parte dei paesi europei, gli ordini e le associazioni professionali tollerano pratiche mediche di dubbia efficacia e per le quali non esiste nessuna prova scientifica. In un contesto simile, prima ancora che diffondere le "prove scientifiche per contrastare la diffusione della disinformazione" sui vaccini, bisognerebbe condurre una vasta operazione di ricognizione ed analisi delle ragioni della diffusione delle cosiddette "medicine alternative", perché esse costituiscono il retroterra dell'esitazione vaccinale	22,22% 2	44,44% 4	22,22% 2	11,11% 1	9	2,78

Q3 In ultimo la raccomandazione 6 suggerisce anche "il coinvolgimento degli operatori sanitari, dei portatori di interessi del settore dell'istruzione, delle parti sociali e dei media come moltiplicatori, per non abbassare il livello di guardia e aumentare la fiducia nell'immunizzazioni". Il coinvolgimento di diversi stakeholder nel processo di comunicazione vaccinale si può realizzare in diversi modi e coinvolgere diversi attori. SCEGLIERE UN'OPZIONE PRIORITARIA O INDICARNE UNA NUOVA

Answered: 9 Skipped: 2

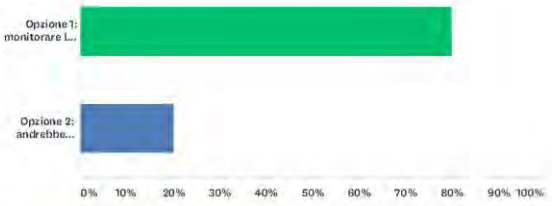


OPZIONI DI RISPOSTA	RISPOSTE	
Opzione 1: probabilmente il gruppo di stakeholder su cui vale la pena di puntare maggiormente è quello degli operatori sanitari, sia perché si tratta del gruppo più omogeneo e meglio identificabile, sia perché in alcune occasioni, come nella pandemia influenzale del 2009 e le epidemie degli anni successivi, ha rappresentato un fattore di resistenza alle vaccinazioni. Sono quindi necessari programmi di ricerca focalizzati su questo gruppo di stakeholder e sui diversi segmenti che lo compongono, anche coinvolgendo le associazioni professionali ed ordinistiche.	22,22%	2
Opzione 2: il settore dell'istruzione dovrebbe avere una priorità proprio perché nel caso dei vaccini non si tratta soltanto di promuovere campagne di educazione alla salute ma di educare ad un approccio più consapevole all'informazione scientifica. Devono quindi esser previsti specifici programmi di educazione per scuole primarie e secondarie.	33,33%	3
Opzione 3: per quanto sia importante la scelta degli attori da coinvolgere, ancora più importante è approfondire le metodologie da usare. Il modello partecipativo, che è stato sviluppato nel corso degli ultimi decenni per il coinvolgimento dei cittadini nelle scelte di politica tecnologica, non può probabilmente essere trasferito tale e quale alla comunicazione sui vaccini. Sarà quindi necessario incentivare la ricerca sugli aspetti metodologici e sull'identificazione di modi specifici per il coinvolgimento delle parti sociali.	33,33%	3
Altro (specificare)	11,11%	1
TOTALE		9

#	ALTRO (SPECIFICARE)	DATA
1	Obbligo di Legge non negoziabile, pena esclusione iscrizione scuole di ogni grado, salvo casi non vaccinabili. Dovrebbe esserci anche pena pecuniaria per le famiglie dei bambini non vaccinati. Nella classe medica ci sono troppi medici dubbiosi/contrari. Legge dello Stato.	10/10/2018 12:51

Q4 La raccomandazione n.10 al suo punto c. invita a "monitorare la disinformazione online sui vaccini e sviluppare strumenti di informazione e orientamenti basati su dati concreti, per aiutare gli Stati membri a contrastare l'esitazione vaccinale, in accordo con la comunicazione della Commissione relativa al contrasto della disinformazione online". Si compone, quindi, di due suggerimenti tra loro connessi, "monitorare la disinformazione online" e "sviluppare strumenti di informazione e orientamenti basati su dati concreti". SCEGLIERE UNA DELLE DUE OPZIONI

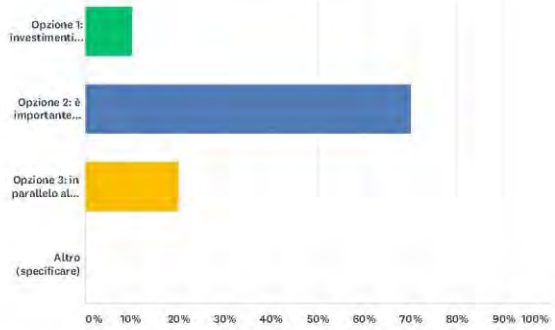
Answered: 10 Skipped: 1



OPZIONI DI RISPOSTA	RISPOSTE	
Opzione 1: monitorare la disinformazione online è la principale priorità, visto che a tutt'oggi non esiste una banca dati europea su questo fenomeno. Sarebbe necessario promuovere la nascita di un osservatorio europeo su Vaccini e Fake News che 1) sorvegli, colleziori, segmenti e cataloghi in tempo reale e nei diversi stati membri la produzione di disinformazione sui vaccini, 2) identifichi precocemente e analizzi le tendenze della disinformazione, 3) identifichi i network economici e gli interessi materiali sottostanti alla produzione intenzionale e/o criminale di disinformazione sui vaccini.	80,00%	8
Opzione 2: andrebbe incentivata la ricerca di strumenti digitali per contrastare l'esitazione vaccinale. In parallelo alle applicazioni più tradizionali per favorire l'accettazione dei vaccini e promuovere informazione corretta, una maggiore attenzione andrebbe prestata anche al settore del gaming e delle applicazioni multimediali: si tratta di aree di interesse che potrebbero avere un impatto significativo sulle giovani generazioni, difficilmente raggiunte da strumenti digitali più convenzionali.	20,00%	2
TOTALE		10

Q5 La raccomandazione n.16 chiede alla Commissione e agli stati membri di "investire nella ricerca nelle scienze comportamentali e sociali sui fattori determinanti dell'esitazione vaccinale in diversi sottogruppi della popolazione e tra gli operatori sanitari". SCEGLIERE UN'OPZIONE PRIORITARIA O INDICARNE UNA NUOVA

Answered: 10 Skipped: 1

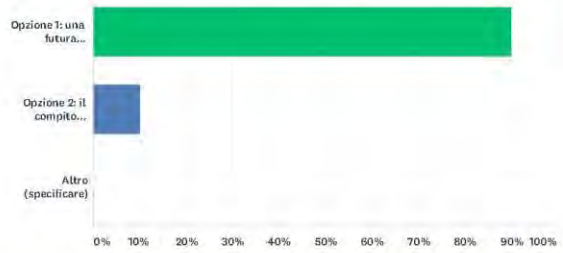


OPZIONI DI RISPOSTA	RISPOSTE	
Opzione 1: investimenti sulla ricerca in questo settore sono una priorità, essi devono comprendere non soltanto la ricerca applicativa empirica (indagini, questionari, ricerca di indicatori, ecc.) ma anche la ricerca di base con la creazione di modelli teorici nuovi, adeguati alla rivoluzione digitale e al mondo online	10,00%	1
Opzione 2: è importante promuovere sia una ricerca quantitativa, che miri all'identificazione di indicatori comportamentali efficaci da applicare su scala nazionale ed europea, sia una ricerca di tipo qualitativo che permetta di indentificare i temi sottostanti all'esitazione vaccinale. In particolare, bisognerebbe promuovere studi osservazionali ed etnografici su diversi segmenti di esitazione vaccinale in diverse regioni europee.	70,00%	7
Opzione 3: in parallelo alla ricerca comportamentale e sociale tradizionale, il fenomeno dell'esitazione vaccinale dovrebbe essere studiato anche attraverso le tecniche di data science. Andrebbe promossa la nascita di centri di aggregazione e fusione dati in questo settore, con l'obiettivo di identificare l'emergere di pattern di disinformazione e di contrastarli precocemente	20,00%	2
Altro (specificare)	0,00%	0
TOTALE		10

#	ALTRO (SPECIFICARE)	DATA
	Non ci sono risposte.	

Q6 La raccomandazione n.19 esorta a creare "una coalizione per la vaccinazione al fine di riunire le associazioni europee di operatori sanitari, oltre alle associazioni di studenti nel settore, affinché si impegnino a fornire al pubblico informazioni accurate, a sfatare i miti e a scambiare le migliori pratiche". SCEGLIERE UN'OPZIONE PRIORITARIA O INDICARNE UNA NUOVA

Answered: 10 Skipped: 1

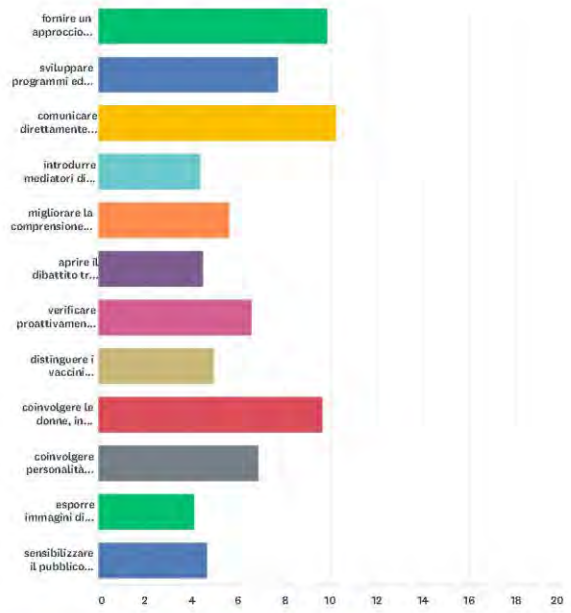


OPZIONI DI RISPOSTA		RISPOSTE	
Opzione 1: una futura "coalizione per la vaccinazione" deve comprendere anche divulgatori, scrittori e giornalisti scientifici, comunicatori professionali nonché blogger e influencer nel settore della salute. È invece raccomandabile che non includa in modo organico interessi industriali e del mondo farmaceutico.		90,00%	9
Opzione 2: il compito fondamentale di questa coalizione dovrebbe essere la creazione di una banca dati di buone pratiche, la loro diffusione e la definizione di una metodologia per il confronto sistematico e la valutazione delle pratiche di comunicazione sui vaccini		10,00%	1
Altro (specificare)		0,00%	0
TOTALE			10

#	ALTRO (SPECIFICARE)	DATA
	Non ci sono risposte.	

Q7 I suggerimenti raccolti dalla Commissione nel corso della sua attività di consultazione pubblica sui vaccini, riuniti nella relazione di sintesi, comprendono suggerimenti per una MIGLIORE COMUNICAZIONE IN MATERIA DI SICUREZZA ED EFFICACIA DEI VACCINI (pilastro 1). ASSEGNARE LA PRIORITA' A CIASCUN SUGGERIMENTO

Answered: 10 Skipped: 1



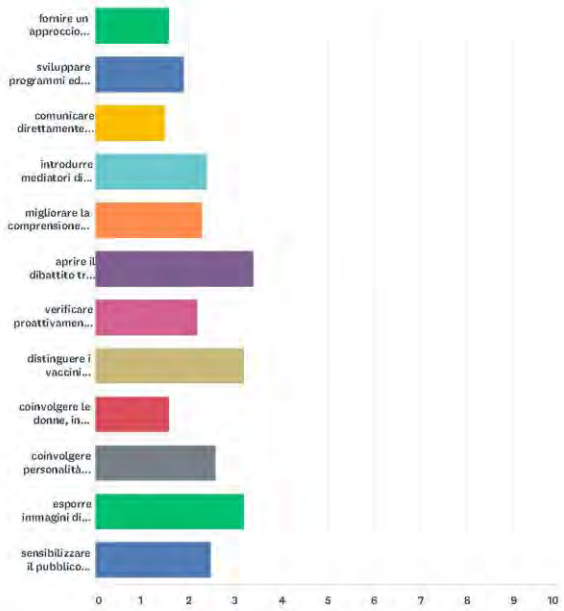
	1	2	3	4	5	6	7	8	9	10	11	12	TOTA
fornire un approccio incentrato sul paziente nel dialogo con i professionisti sanitari.	44,44% 4	11,11% 1	11,11% 1	11,11% 1	0,00% 0	11,11% 1	0,00% 0	0,00% 0	11,11% 1	0,00% 0	0,00% 0	0,00% 0	
sviluppare programmi ed eventi di sensibilizzazione a livello locale.	0,00% 0	12,50% 1	12,50% 1	25,00% 2	12,50% 1	12,50% 1	0,00% 0	12,50% 1	0,00% 0	12,50% 1	0,00% 0	0,00% 0	
comunicare direttamente con i genitori, anche durante i corsi prenatali.	25,00% 2	25,00% 2	25,00% 2	12,50% 1	0,00% 0	12,50% 1	0,00% 0	0,00% 0	0,00% 0	0,00% 0	0,00% 0	0,00% 0	
introdurre mediatori di fiducia nei gruppi vulnerabili (ad esempio comunità Rom, rifugiati).	0,00% 0	12,50% 1	0,00% 0	0,00% 0	0,00% 0	0,00% 0	12,50% 1	12,50% 1	0,00% 0	37,50% 3	25,00% 2	0,00% 0	
migliorare la comprensione degli studi sulla sicurezza dei vaccini (ad es. infografica, video, volantini).	0,00% 0	12,50% 1	0,00% 0	0,00% 0	12,50% 1	12,50% 1	12,50% 1	12,50% 1	12,50% 1	0,00% 0	25,00% 2	0,00% 0	

8 / 24

aprire il dibattito tra sostenitori e oppositori ai fini di un equilibrio tra benefici e rischi;	0,00% 0	0,00% 0	12,50% 1	0,00% 0	12,50% 1	0,00% 0	12,50% 1	12,50% 1	0,00% 0	12,50% 1	12,50% 1	25,00% 2
verificare proattivamente i fatti riguardo alle notizie false e ai conflitti di interesse;	0,00% 0	0,00% 0	0,00% 0	12,50% 1	25,00% 2	12,50% 1	37,50% 3	0,00% 0	0,00% 0	12,50% 1	0,00% 0	0,00% 0
distinguere i vaccini essenziali (ad es. contro la poliomielite) da quelli volontari (ad es. contro l'influenza);	0,00% 0	0,00% 0	0,00% 0	11,11% 1	11,11% 1	11,11% 1	0,00% 0	11,11% 1	33,33% 3	0,00% 0	22,22% 2	0,00% 0
coinvolgere le donne, in quanto principali responsabili dell'assistenza ai bambini e agli anziani;	22,22% 2	33,33% 3	11,11% 1	11,11% 1	0,00% 0	11,11% 1	0,00% 0	0,00% 0	11,11% 1	0,00% 0	0,00% 0	0,00% 0
coinvolgere personalità celebri nella sensibilizzazione alla vaccinazione;	0,00% 0	0,00% 0	22,22% 2	11,11% 1	22,22% 2	0,00% 0	11,11% 1	22,22% 2	0,00% 0	0,00% 0	0,00% 0	11,11% 1
esporre immagini di malattie prevenibili da vaccino, come avviene per i pacchetti di sigarette;	12,50% 1	0,00% 0	0,00% 0	0,00% 0	0,00% 0	12,50% 1	0,00% 0	12,50% 1	12,50% 1	0,00% 0	12,50% 1	37,50% 3
sensibilizzare il pubblico all'immunità di gregge e alla responsabilità individuale;	11,11% 1	0,00% 0	11,11% 1	0,00% 0	0,00% 0	0,00% 0	11,11% 1	0,00% 0	11,11% 1	22,22% 2	11,11% 1	22,22% 2

Q8 ATTRIBUIRE UN VALORE A CIASCUNO DI QUESTI SUGGERIMENTI

Answered: 10 Skipped: 1

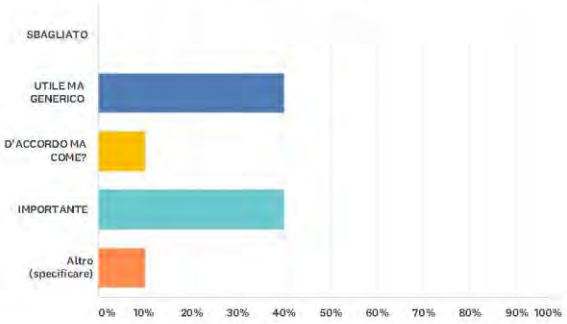


	FONDAMENTALE	IMPORTANTE	POTREBBE ESSERE UTILE	PROBABILMENTE INUTILE	DANNOSO	TOTALE	MEDIA PONDERATA
fornire un approccio incentrato sul paziente nel dialogo con i professionisti sanitari;	40,00% 4	60,00% 6	0,00% 0	0,00% 0	0,00% 0	10	1,60
sviluppare programmi ed eventi di sensibilizzazione a livello locale;	30,00% 3	50,00% 5	20,00% 2	0,00% 0	0,00% 0	10	1,90
comunicare direttamente con i genitori, anche durante i corsi prenatali;	50,00% 5	50,00% 5	0,00% 0	0,00% 0	0,00% 0	10	1,50
introdurre mediatori di fiducia nei gruppi vulnerabili (ad esempio comunità Rom, rifugiati);	0,00% 0	60,00% 6	40,00% 4	0,00% 0	0,00% 0	10	2,40
migliorare la comprensione degli studi sulla sicurezza dei vaccini (ad es. infografica, video, volantini);	20,00% 2	50,00% 5	10,00% 1	20,00% 2	0,00% 0	10	2,30

aprire il dibattito tra sostenitori e oppositori ai fini di un equilibrio tra benefici e rischi;	0,00% 0	20,00% 2	40,00% 4	20,00% 2	20,00% 2	10	3,40
verificare proattivamente i fatti riguardo alle notizie false e ai conflitti di interesse;	10,00% 1	60,00% 6	30,00% 3	0,00% 0	0,00% 0	10	2,20
distinguere i vaccini essenziali (ad es. contro la poliomielite) da quelli volontari (ad es. contro l'influenza);	0,00% 0	40,00% 4	30,00% 3	0,00% 0	30,00% 3	10	3,20
coinvolgere le donne, in quanto principali responsabili dell'assistenza ai bambini e agli anziani;	50,00% 5	40,00% 4	10,00% 1	0,00% 0	0,00% 0	10	1,60
coinvolgere personalità celebri nella sensibilizzazione alla vaccinazione;	0,00% 0	40,00% 4	60,00% 6	0,00% 0	0,00% 0	10	2,60
esporre immagini di malattie prevenibili da vaccino, come avviene per i pacchetti di sigarette;	10,00% 1	20,00% 2	30,00% 3	20,00% 2	20,00% 2	10	3,20
sensibilizzare il pubblico all'immunità di gregge e alla responsabilità individuale;	10,00% 1	40,00% 4	40,00% 4	10,00% 1	0,00% 0	10	2,50

Q9 fornire un approccio incentrato sul paziente nel dialogo con i professionisti sanitari;

Answered: 10 Skipped: 1

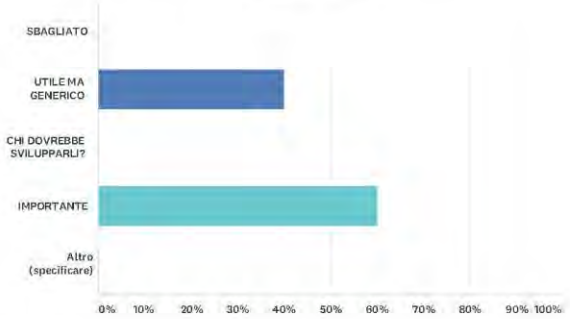


OPZIONI DI RISPOSTA	RISPOSTE	
SBAGLIATO	0,00%	0
UTILE MA GENERICO	40,00%	4
D'ACCORDO MA COME?	10,00%	1
IMPORTANTE	40,00%	4
Altro (specificare)	10,00%	1
Totale rispondenti: 10		

#	ALTRO (SPECIFICARE)	DATA
1	Frase che vuol dire tutto e nulla. I professionisti sanitari DEVONO essere istruiti su questo come su ogni pratica medica di competenza.	10/10/2018 13:07

Q10 sviluppare programmi ed eventi di sensibilizzazione a livello locale;

Answered: 10 Skipped: 1

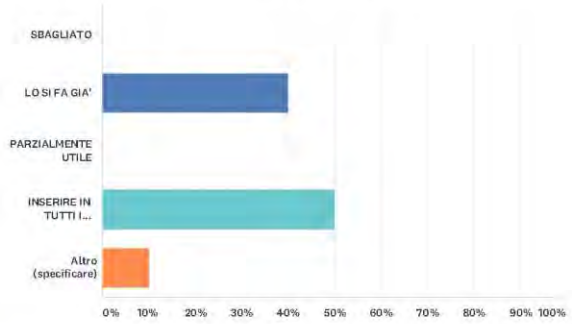


OPZIONI DI RISPOSTA	RISPOSTE	
SBAGLIATO	0,00%	0
UTILE MA GENERICO	40,00%	4
CHI DOVREBBE SVILUPPARLI?	0,00%	0
IMPORTANTE	60,00%	6
Altro (specificare)	0,00%	0
TOTALE		10

#	ALTRO (SPECIFICARE)	DATA
	Non ci sono risposte.	

Q11 comunicare direttamente con i genitori, anche durante i corsi prenatali;

Answered: 10 Skipped: 1

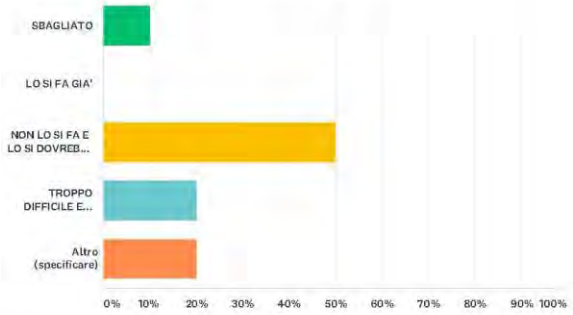


OPZIONI DI RISPOSTA	RISPOSTE	
SBAGLIATO	0,00%	0
LO SI FA GIA'	40,00%	4
PARZIALMENTE UTILE	0,00%	0
INSERIRE IN TUTTI I PROGRAMMI DI CONTRASTO ALL'ESITAZIONE VACCINALE	50,00%	5
Altro (specificare)	10,00%	1
TOTALE		10

#	ALTRO (SPECIFICARE)	DATA
1	importante	06/10/2018 15:16

Q12 introdurre mediatori di fiducia nei gruppi vulnerabili (ad esempio comunità Rom, rifugiati);

Answered: 10 Skipped: 1

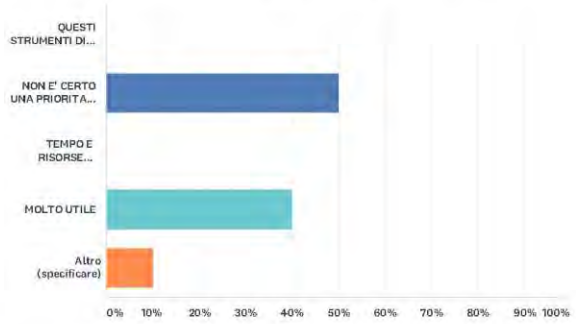


OPZIONI DI RISPOSTA	RISPOSTE	
SBAGLIATO	10,00%	1
LO SI FA GIA'	0,00%	0
NON LO SI FA E LO SI DOVREBBE INVECE FARE	50,00%	5
TROPPO DIFFICILE E COSTOSO PER I BENEFICI CHE POTREBBE APPORTARE	20,00%	2
Altro (specificare)	20,00%	2
TOTALE		10

#	ALTRO (SPECIFICARE)	DATA
1	c'e' esitazione vaccinale in questi gruppi?	06/10/2018 15:16
2	importante	02/10/2018 12:38

Q13 migliorare la comprensione degli studi sulla sicurezza dei vaccini (ad es. infografica, video, volantini);

Answered: 10 Skipped: 1

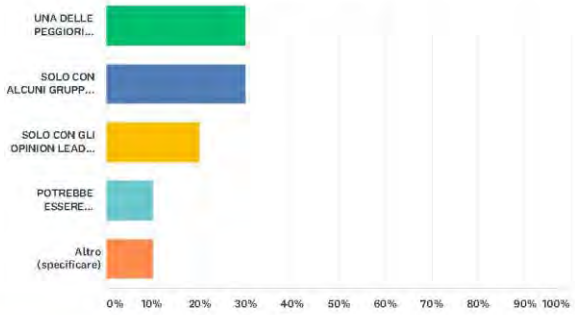


OPZIONI DI RISPOSTA	RISPOSTE	
QUESTI STRUMENTI DI COMUNICAZIONE SONO INEFFICACI OGGI	0,00%	0
NON E' CERTO UNA PRIORITA' MA PUO' SERVIRE	50,00%	5
TEMPO E RISORSE SPRECATE	0,00%	0
MOLTO UTILE	40,00%	4
Altro (specificare)	10,00%	1
TOTALE		10

#	ALTRO (SPECIFICARE)	DATA
1	deve provenire da fonte fiduciaria	06/10/2018 15:16

Q14 aprire il dibattito tra sostenitori e oppositori ai fini di un equilibrio tra benefici e rischi

Answered: 10 Skipped: 1

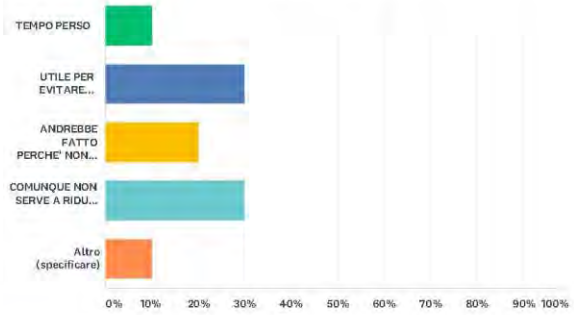


OPZIONI DI RISPOSTA	RISPOSTE	
UNA DELLE PEGGIORI STUPIDAGGINI CHE SI POSSONO FARE	30,00%	3
SOLO CON ALCUNI GRUPPI ESITANTI MA MAI CON GLI ATTIVISTI ANTI VACCINAZIONE	30,00%	3
SOLO CON GLI OPINION LEADER ANTI VACCINAZIONE	20,00%	2
POTREBBE ESSERE UTILISSIMO	10,00%	1
Altro (specificare)	10,00%	1
TOTALE		10

#	ALTRO (SPECIFICARE)	DATA
1	Dialogo condannato a fallire, peggio che in politica. Obbligo di legge dello Stato con pene precise e sicure (non ammissione alle scuole, multe etc)	10/10/2018 13:07

Q15 verificare proattivamente i fatti riguardo alle notizie false e ai conflitti di interesse

Answered: 10 Skipped: 1

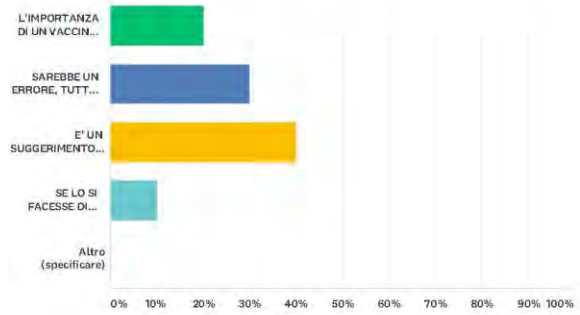


OPZIONI DI RISPOSTA	RISPOSTE	
TEMPO PERSO	10,00%	1
UTILE PER EVITARE L'ACCUSA DI ESSERE PARZIALE	30,00%	3
ANDREBBE FATTO PERCHE' NON SEMPRE SI TRATTA DI MENZOGNE	20,00%	2
COMUNQUE NON SERVE A RIDURRE L'ESITAZIONE	30,00%	3
Altro (specificare)	10,00%	1
TOTALE		10

#	ALTRO (SPECIFICARE)	DATA
1	bisogna fornire risposta certa su ogni notizia allarmante	06/10/2018 15:16

Q16 distinguere i vaccini essenziali (ad es. contro la poliomielite) da quelli volontari (ad es. contro l'influenza);

Answered: 10 Skipped: 1

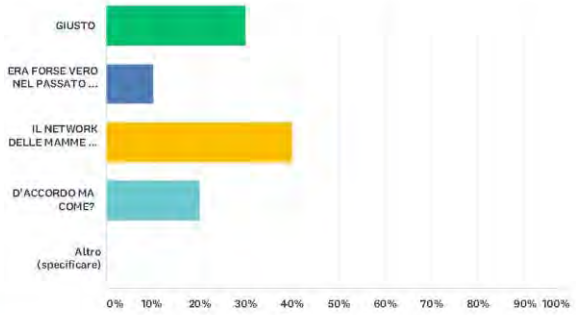


OPZIONI DI RISPOSTA	RISPOSTE	
L'IMPORTANZA DI UN VACCINO DIPENDE DAL CONTESTO E DAL SOGGETTO	20,00%	2
SAREBBE UN ERRORE, TUTTI I VACCINI SONO UTILI	30,00%	3
E' UN SUGGERIMENTO GIUSTO CHE POTREBBE MIGLIORARE LA COMUNICAZIONE	40,00%	4
SE LO SI FACESSE DI ROUTINE SI RISOLVEREBBERO MOLTI PROBLEMI	10,00%	1
Altro (specificare)	0,00%	0
TOTALE		10

#	ALTRO (SPECIFICARE)	DATA
	Non ci sono risposte.	

Q17 coinvolgere le donne, in quanto principali responsabili dell'assistenza ai bambini e agli anziani,

Answered: 10 Skipped: 1

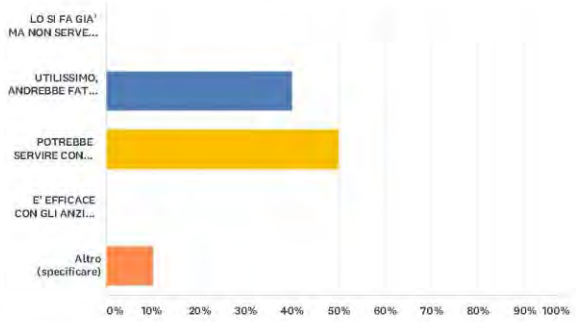


OPZIONI DI RISPOSTA	RISPOSTE	
GIUSTO	30,00%	3
ERA FORSE VERO NEL PASSATO MA OGGI NON HA PIU' SENSO	10,00%	1
IL NETWORK DELLE MAMME E' FONDAMENTALE PER CONTRASTARE L'ESITAZIONE	40,00%	4
D'ACCORDO MA COME?	20,00%	2
Altro (specificare)	0,00%	0
TOTALE		10

#	ALTRO (SPECIFICARE)	DATA
	Non ci sono risposte.	

Q18 coinvolgere personalità celebri nella sensibilizzazione alla vaccinazione;

Answered: 10 Skipped: 1

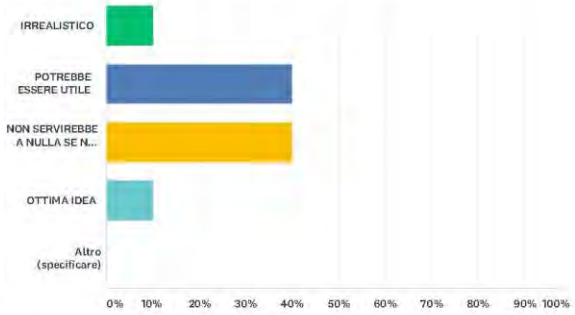


OPZIONI DI RISPOSTA	RISPOSTE	
LO SI FA GIA' MA NON SERVE A MOLTO	0,00%	0
UTILISSIMO, ANDREBBE FATTO CON REGOLARITA'	40,00%	4
POTREBBE SERVIRE CON I GIOVANI	50,00%	5
E' EFFICACE CON GLI ANZIANI MA NON CON GIOVANI	0,00%	0
Altro (specificare)	10,00%	1
TOTALE		10

#	ALTRO (SPECIFICARE)	DATA
1	utile visto che i personaggi celebri sono attivamente coinvolti dai portatori di interesse nella divulgazione di fake news	06/10/2018 15:16

Q19 esporre immagini di malattie prevenibili da vaccino, come avviene per i pacchetti di sigarette;

Answered: 10 Skipped: 1



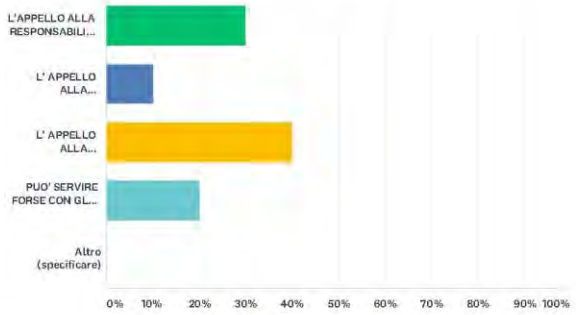
OPZIONI DI RISPOSTA	RISPOSTE	
IRREALISTICO	10,00%	1
POTREBBE ESSERE UTILE	40,00%	4
NON SERVIREBBE A NULLA SE NON A STIGMATIZZARE I MALATI	40,00%	4
OTTIMA IDEA	10,00%	1
Altro (specificare)	0,00%	0
TOTALE		10

#	ALTRO (SPECIFICARE)	DATA
	Non ci sono risposte.	

DOCUMENTO PREPARATORIO SU VACCINI E FAKE NEWS SurveyMonkey

Q20 sensibilizzare il pubblico all'immunità di gregge e alla responsabilità individuale

Answered: 10 Skipped: 1



OPZIONI DI RISPOSTA		RISPOSTE
L'APPELLO ALLA RESPONSABILITA INDIVIDUALE SERVE MOLTO POCO	30,00%	3
L' APPELLO ALLA RESPONSABILITA INDIVIDUALE E' UTILE SOLO SE RIGUARDA LE PERSONE PIU' VICINE E I FAMIGLIARI	10,00%	1
L' APPELLO ALLA RESPONSABILITA INDIVIDUALE DEVE ESSERE AL CENTRO DI TUTTE LE CAMPAGNE DI SENSIBILIZZAZIONE	40,00%	4
PUO' SERVIRE FORSE CON GLI ADULTI MA NON CON I GIOVANI	20,00%	2
Altro (specificare)	0,00%	0
TOTALE		10

#	ALTRO (SPECIFICARE)	DATA
	Non ci sono risposte.	

Pictures form the workshop

EVENTS GENERATED BY WORKSHOP

REGIONE AUTONOMA FRIULI VENEZIA GIULIA

Programma Evento Residenziale

Vaccinazioni, movimenti anti-vaccinazioni e comunicazione (AAS5_18217)[1]

4 dicembre 2018

09:00 - 09:15	**Presentazione del corso** Serie di relazioni su tema preordinato Docenti: LUCCHINI GUIDO – Ordine dei Medici di Pordenone Supplenti: SIMON GIORGIO
09:15 - 09:45	**Vaccini e processo decisionale tra razionalità limitata e costruzione sociale** Serie di relazioni su tema preordinato Docenti: BOMBEN LUCIO – Dipartimento Prevenzione AAS5 Supplenti: SIMON GIORGIO
09:45 -10:15	**Azienda sanitaria e professioni: scienze e comunicazioni** Serie di relazioni su tema preordinato Docenti: SIMON GIORGIO – Direttore AAS5 Supplenti: BOMBEN LUCIO
10:15 - 10:45	**Vaccini: ascoltare e parlare con le persone** Serie di relazioni su tema preordinato Docenti: MORDINI EMILIO – COMPARE Risk Communication Supplenti: MANFREDI CARLO
10:45 - 11:15	**L'evoluzione della pratica vaccinale** Serie di relazioni su tema preordinato Docenti: GRECO DONATO – Istituto Superiore di Sanità Supplenti: SIMON GIORGIO
11:15 - 11:45	**Vaccini: bufale e conoscenza scientifica** Serie di relazioni su tema preordinato Docenti: MANFREDI CARLO – Ordine dei Medici di Massa Carrara Supplenti: LUCCHINI GUIDO
11:45 - 12:45	**Tavola rotonda e discussione** Tavole rotonde con dibattito tra esperti (non simposi o corsi brevi) Docenti: BOMBEN LUCIO, GRECO DONATO, MANFREDI CARLO, MORDINI EMILIO, SIMON GIORGIO Supplenti: LUCCHINI GUIDO
12:45 - 13:00	**Verifica d'apprendimento** Verifica dell'apprendimento (verifiche scritte) Docenti: SIMON GIORGIO Supplenti: LUCCHINI GUIDO

[1] Evento organizzato in collaborazione con il progetto COMPARE (*Collaborative management platform for detection and analyses of (re-) emerging and foodborne outbreaks in Europe*)

SLIDES

Challenges to further success of vaccination

Alessandra Martini

European Commission, DG Research & Innovation.
E3: Fighting infectious diseases and advancing public health

WORKSHOP ON VACCINES, ANTIVACCINATION MOVEMENTS, COMMUNICATION
Fiume Veneto (PN) – 26-27 October 2018

Challenges to further success of vaccination

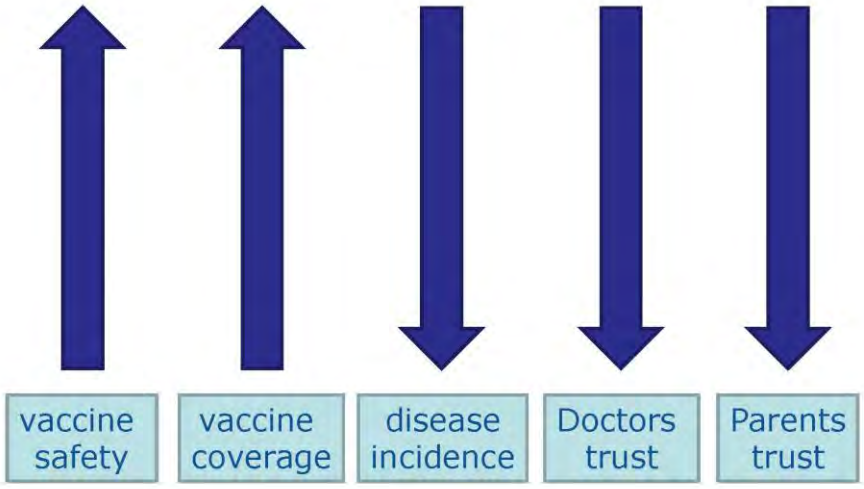
Keep high vaccination coverage rates
- Address the change in risk perception
- Raise confidence among health professionals
- Raise vaccine acceptance among the public
- Close immunity gaps in across ALL age groups
- Ensure 'newly arrived migrants' adequate protection

Guarantee equal access to vaccination
- Break economic barriers/overcome inequalities
- Reach the hard-to-reach
- Secure vaccine supply /mitigate risk of shortages
- Raise political awareness

Strengthen NIP monitoring and performance
- Strengthen surveillance as well as capacity for response
- Timely availability of scientific evidence on vaccines & vaccination strategies
- Vaccine effectiveness and vaccination impact monitoring
- Evidence-based, targeted, integrated communications
- Monitoring of AEFIs
- Training

Vaccination calendars
- Simplification of current national vaccine calendars
- Move from a childhood to a life long calendar
- Not only about the 'new vaccines'; adults get childhood diseases

The Vaccination Paradox



Key drivers of falling vaccination coverage

1. **Vaccine hesitancy** – refers to "delay in acceptance or refusal of vaccines despite availability of vaccination services" (ECDC)

2. **Variation of vaccination policies & schedules between EU countries** (variation in time of administration, number of doses, etc.)

3. **Other factors**
   - Lack of access to vaccines
   - Vaccine shortages
   - Unpredictable demand
   - Insufficient motivation for industry to make the necessary investments (financing and expertise)
   - Constraints linked to public financing

Vaccine Hesitancy – a complex issue

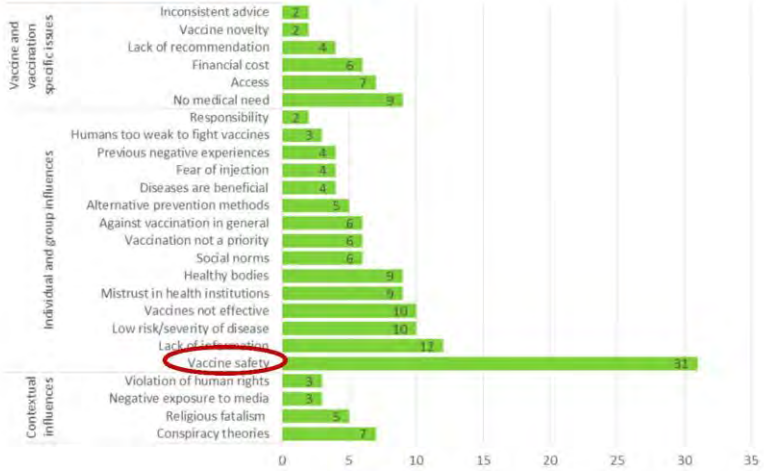
- *Strategic Advisory Group of Experts (SAGE) on Immunisation:*

*'Vaccine hesitancy refers to delay in acceptance or refusal of vaccines despite availability of vaccine services. Vaccine hesitancy is complex and context specific, varying across time, place and vaccines. It is influenced by a number of factors including issues of **confidence** [level of trust in vaccine or provider], **complacency** [do not perceive a need for a vaccine, do not value the vaccine], and **convenience** [access issues]'*

CONTEXTUAL INFLUENCES	INDIVIDUAL/GROUP INFLUENCES	VACCINE/VACCINATION SPECIFIC ISSUES
• Politics • Culture • Socio-economic • Media environment • Influential leaders	• Social norms • Beliefs • Attitudes / Motivation • Knowledge • Personal experience	• Schedule • Delivery • Costs • Introduction of new vaccines

Larson HJ, et al. Understanding vaccine hesitancy around vaccines and vaccination from a global perspective: A systematic literature review of published literature, 2007-2012. Vaccine (2014)

The main key determinants of hesitancy documented in Europe



Source: ECDC, 2015

Source: Vaccination Factsheet, 2018

Background – related documents

- *The 2009 Council Recommendation on seasonal influenza vaccination (2009/1019/EU)*
- *The 2011 Council conclusions on childhood immunisation: successes and challenges of European childhood immunisation and the way forward (2011/C 202/02)*
- *The Joint Procurement Agreement, established by the serious cross-border health threads Decision (1082/2013/EU)*
- *2014 Council Conclusions on vaccinations as an effective tool in public health (2014/C 438/04)*
- *2014 State of play on implementation of the Council Recommendation of 22 December 2009 on seasonal influenza vaccination (2009/1019/EU)*
- *A Joint Action on vaccination co-funded by the Health Programme 2014-2020, launched in 2018, addressing vaccine hesitancy amongst other topics.*

Joint Action on vaccination

- The European Commission is reinforcing its support to national vaccination efforts to increase coverage, including through the preparation of a Joint Action on vaccination,define EU-JAV, co-funded by the Health Programme (€3.55 million).
- Launched in 2018, the Joint Action will address vaccine hesitancy and seek to increase vaccination coverage in the EU. It is coordinated by INSERM (France) and involves 24 countries (among them 21 EU countries) are partners.
- It will also work towards strengthening cooperation of national immunisation advisory groups (NITAGs) with a view to increasing transparency and trust in the decision-making process regarding the introduction of new vaccines.
- It will define tools and methods for priority-setting and identify mechanisms to increase collaboration and cooperation in vaccine and vaccination research among Member States

Objectives of the Council Recommendation

3 main pillars for action:

1. **tackling vaccine hesitancy and improving vaccination coverage**
2. **sustainable vaccination policies in the EU**
3. **EU coordination and contribution to global health**

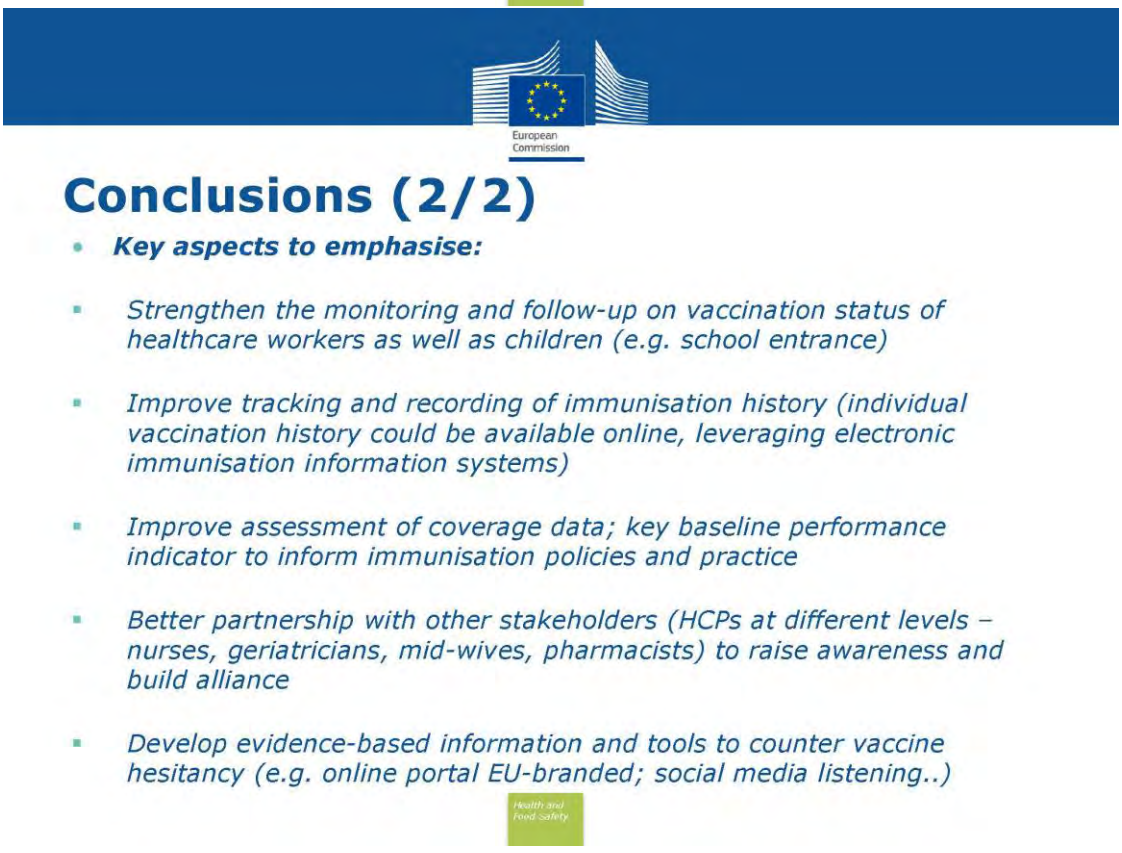
Actions by Commission and Member States

- Developing and implementing **national and/or regional vaccination plans** by 2020, including a target of at least 95% vaccination coverage for measles;
- Introducing **routine checks** of vaccination status and regular opportunities to vaccinate across different stages of life, for example in schools and workplaces;
- Presenting options for a common **vaccination card** that can be shared electronically across borders;
- Establishing a European **vaccination information portal** by 2019 to provide online objective, transparent and updated evidence on the benefits and safety of vaccines;
- Strengthening partnerships and collaboration on vaccination with **international partners**.
- Increase the **effectiveness and efficiency of EU and national funding of vaccine R&D**

Actions by Commission and Member States (2)

- Developing a virtual repository with **information on vaccine stocks and needs** to facilitate voluntary exchange of information on available supplies and shortages of essential vaccines;
- Equipping all **healthcare workers** with the necessary training to confidently deliver vaccinations and address hesitant behaviours;
- Convening a **Coalition for Vaccination** to bring together European associations of healthcare workers as well as relevant students' associations in the field, to commit to delivering accurate information to the public, combating myths and exchanging best practice;
- Establishing a **European Information Sharing System** to gather knowledge and develop guidelines for a core EU vaccination schedule by 2020 with doses and ages that EU Member States agree as being common to all countries;


European Commission
Conclusions (1/2)
Key aspects to emphasise:
Need to develop programmes with a life-course approach; we must close immunity gaps and address different target group needs
Key to widen out access opportunities, across the entire life-course, and remove direct/indirect barriers (financial, structural, legal…)
Foster EU scientific collaboration on the assessment of evidence for decision-making on vaccination policies (e.g. EVIS, NITAGs and HTA)
Bolster efforts to roll out and implement electronic immunisation information systems, for record-keeping but more broadly to strengthen the monitoring and performance of programmes
Empower healthcare professionals, at all levels, particularly at the primary care; must be effective advocates of vaccination (training -soft skills and hard skills, communications, etc.)
Health and Food Safety


European Commission
Conclusions (2/2)
Key aspects to emphasise:
Strengthen the monitoring and follow-up on vaccination status of healthcare workers as well as children (e.g. school entrance)
Improve tracking and recording of immunisation history (individual vaccination history could be available online, leveraging electronic immunisation information systems)
Improve assessment of coverage data; key baseline performance indicator to inform immunisation policies and practice
Better partnership with other stakeholders (HCPs at different levels – nurses, geriatricians, mid-wives, pharmacists) to raise awareness and build alliance
Develop evidence-based information and tools to counter vaccine hesitancy (e.g. online portal EU-branded; social media listening..)
Health and Food Safety

VACCINI, MOVIMENTI ANTI-VACCINAZIONE E COMUNICAZIONE

26-27 Ottobre 2018

Il punto di vista della sanità pubblica

DONATO GRECO M.D.

1

"con l'eccezione dell'acqua potabile nessun altro strumento, neppure gli antibiotici, ha avuto un maggiore effetto sulla riduzione della mortalità e la crescita della popolazione" (Plotkin & Plotkin, 1994)

2

Vaiolo

Polio: Last Cases

Americas Region
Luis Fermin Tenorio
Peru 1991

Pacific Region
Mum Chanty
Cambodia 1997

European Region
Melik Minas
Turkey 1998

Polio Eradication

Impatto dei Vaccini nel 20th & 21st secolo USA

Disease	Pre-Vaccine Est. Cases/Year	Cases Reported in 2010	Percent Decrease
Diphtheria	21,053	0	100%
Tetanus	580	8	99%
Pertussis	200,752	21,291	89%
Measles	530,217	61	>99%
Mumps	162,344	2,528	98%
Rubella	47,745	6	>99%
Chickenpox	>4 million	449,363	89%
Rotavirus	62,500	7,500	88%

Source: Epidemiology and Prevention of Vaccine-Preventable Diseases, 12th Edition, May, 2011, p G7.

Cha fanno i vaccini

- Prevengono 2-3 milioni di morti infantili/anno
- E 600 mila morti di adulti/anno
- Migliorano lo sviluppo fisico dei bimbi
- Favoriscono lo sviluppo educativo
- Riducono la povertà
- Riducono la disequità sociale

(Deogaonkar et al. 2015; Verguet et al 2013)

E sull'economia

- Per ogni dollaro speso in vaccini ritornano almeno 16 dollari in benefici economici e sanitari
- Se consideriamo I benefiici economici di una vita più lunga in salute per ogni dollaro speso ne ricaviamo 44 di beneficio netto

(Ozawa, Sachiko, et al. "Return on investment from childhood immunization in low- and middle-income countries, 2011–20." *Health Affairs* 35.2 (2016): 199-207.)

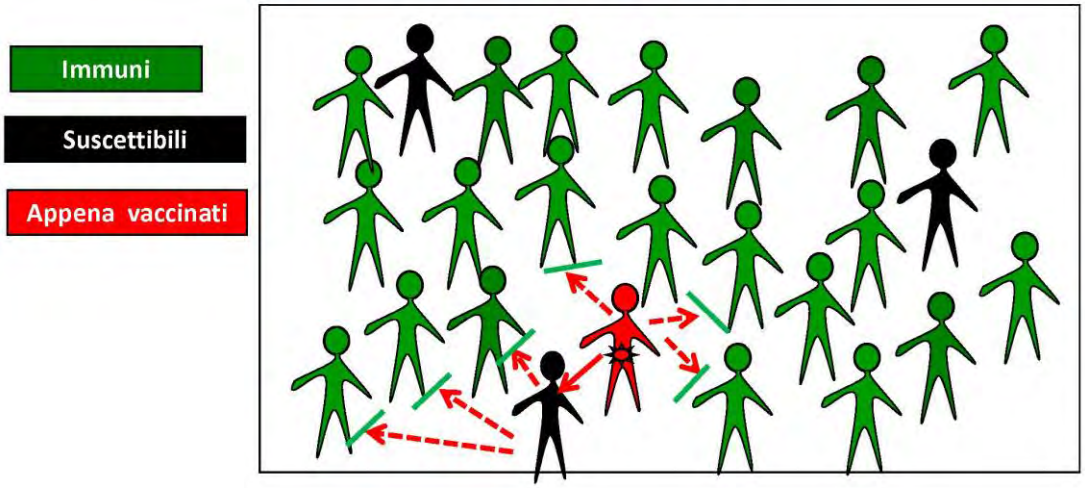
7

Ma se abbiamo in Italia già un'alta copertura vaccinale perché preoccuparci ?

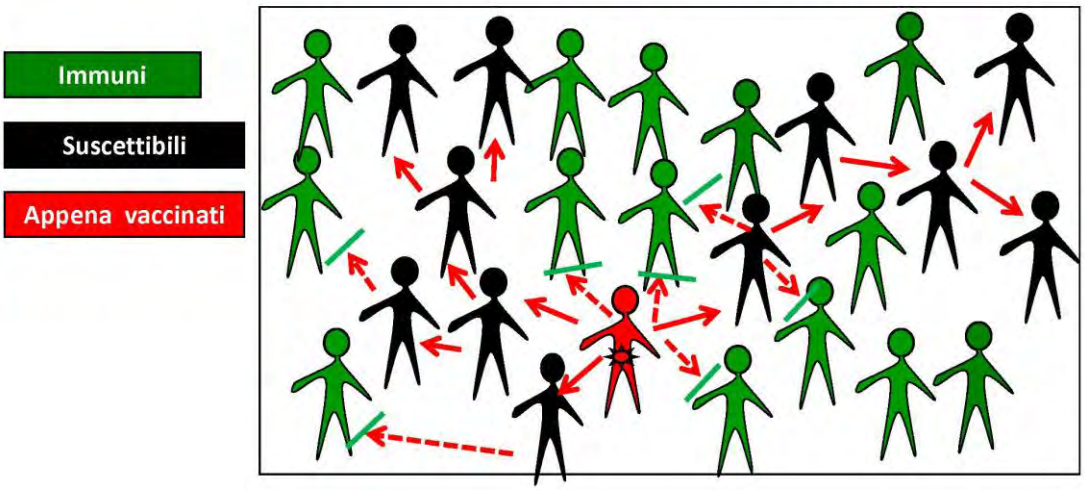
- Una copertura del 95% lascia 25.000 bimbi non protetti, in 5 anni 125.000
- Una copertura dell'80% (Morbillo) lascia 100.000 bimbi indifesi, mezzo milione in 5 anni
- L'immunità vaccinale (e per alcune malattie anche quella da malattia) diminuisce nel tempo lasciando gli adulti suscettibili anche grazie alla diminuzione di Buster naturali dovuti al successo vaccinale.

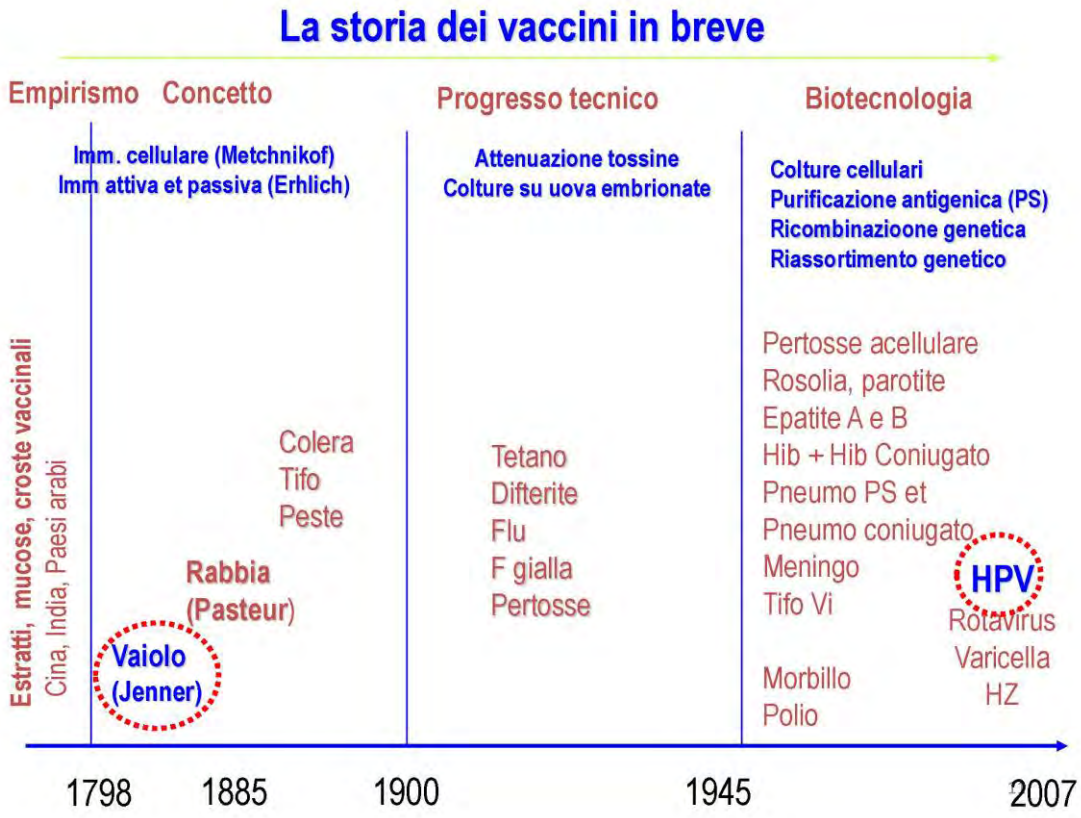
8

Emergenza di malattie in una popolazione ad alta copertura vaccinale



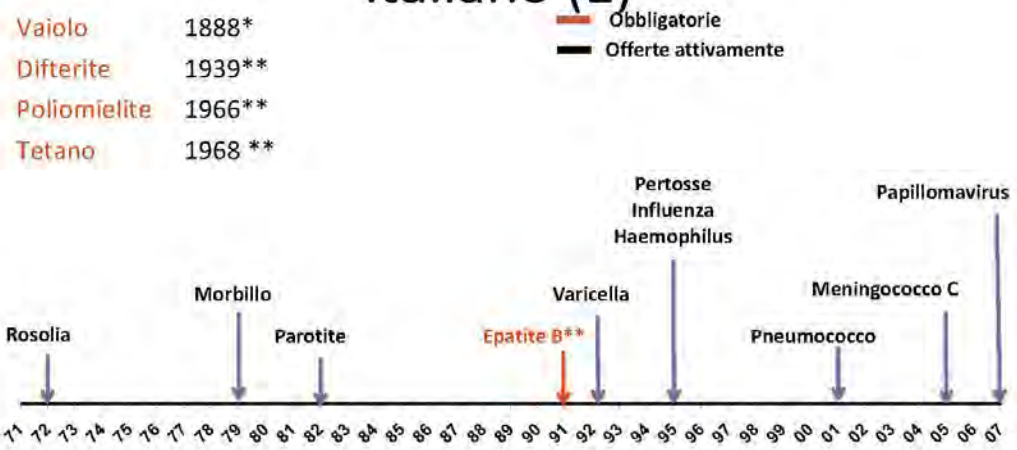
Emergenza di malattia in una popolazione a bassa copertura vaccinale





Introduzione delle vaccinazioni nel SSN italiano (1)

Vaiolo	1888*
Difterite	1939**
Poliomielite	1966**
Tetano	1968 **



* Sospesa nel 1981

** Sospensione dell'obbligo a livello regionale (Veneto/Trentino)

Classici Target

- **Neonati** - Hep B, DPT, Polio, BCG
- **Bambini** – Hep B, DPT, Polio (IPV, OPV), Hib, Hep A, MMR, pneumococcal pneumonia, influenza, rotavirus
- **Pre-scuola** –catch up
- **Età scolare** - dT, MMR
- **Teen agers** – catch up Hep B, MMR
- **Donne adulte** - Rubella
- **Pazienti cronici** – Influenza, pneumococcal pneumonia
- **Viaggiatori** – yellow fever, polio, dT
- **Adulti** - dT
- **Anziani** - Influenza, pneumococcal pneumonia, dT
- **Bioterrorismo** – smallpox, anthrax

13

NUOVI VACCINI

- Pneumcoccus
- Rotavirus
- Human Papilloma Virus
- HIV
- Malaria
- Dengue
- Salmonella
- Escherichia coli
- Lyme disease
- Western Equine Encephalitis
- Ebola virus
- Leishmaniasis
- Helicobacter pylori
- Many others

14

Nuove combinazioni

- Nuovi esavalenti
- MRPV
- Pneu-meningC
- Basse dosi
- Diarreal
- ……..
- ….

Aggiungi sierotipi

- Altri Pneumo
- Altri HPV
- Altri Morbillo
- Altri Neisseria
- Influenza
- ….
- ….

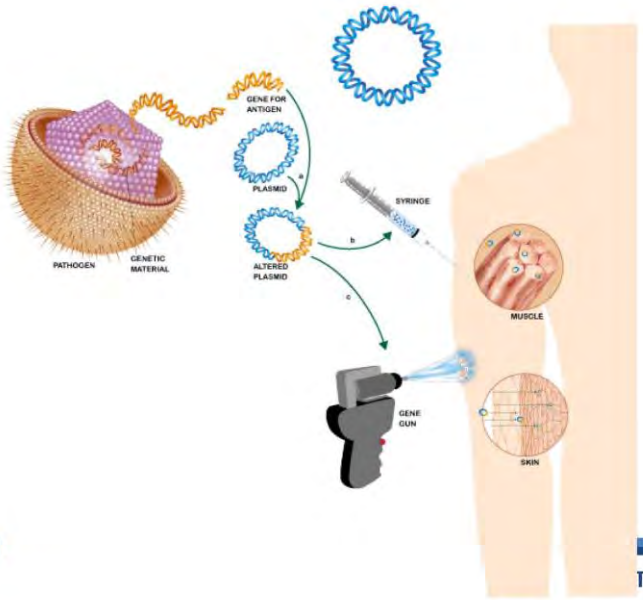
15

Nuove tecnologie

- Non più solo Microarray
- Ma full length sequencing
- Nuove formulazioni
- Minori dosaggi d'antigene
- Nuovi adjuvanti
- Nuove tecnologie di inoculazione

16

DNA Vaccine gun



UNIVERSITÀ CATTOLICA del Sacro Cuore

TATISTICA 17

Edible Vaccines

18

VACCINI VERSO PATOLOGIE CRONICHE

Cancro : Seno,Colon, melanoma

Dipendenze: cocaine, methamphetamine, Fumo di tabacco

Neurodegenerazione : Alzheimer, Parkinsonism

Atherosclerosis

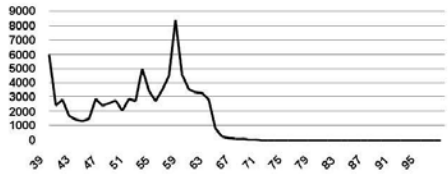
Disordini metabolici : diabete dipendente da insulina
obesità, morbo celiaco
Malattie autoimmuni : Artrite reumatoide

19

Ricordiamo il DIRITTO

- ART 31 COSTITUZIONE
- DIRITTO ALLA PREVEZIONE
- A NON MORIRE DI MALATTIA PREVENIBILE
- A Ricevere l'offerta in modo **gentile**, comprensibile ed efficace

Siamo bravi !!



- Tra i primi a sconfiggere la Polio !!
- Altissima copertura per L'esavalente !
- Alta copertura antinfluenzale degli anziani !
- Tra primi a promuovere il vaccino HPV

Il tutto con un sistema pubblico universale e gratuito !!

Che problemi ? Malattie VPD

- Epidemie ricorrenti di morbillo
- Persistenza della pertosse
- Grande eccesso di mortalità e morbosità legato all'influenza
- Molta influenza nei bimbi cronici
- Ancora Tetano,meningite batterica,Epatite B nei dializzati ,HPV .....

Che problemi di sistema?

- Nuove generazioni prive di cultura vaccinale
- Molti movimenti antivaccinali
- Scortesia dell'offerta vaccinale
- Scarsa copertura del personale sanitario
- Scarsa copertura di adolescenti ed adulti
- Stenta l'anagrafe vaccinale digitale
- Disparità di accesso tra Regioni
- Difficoltà alla promozione di nuovi vaccini
- Vaccinazione degli immigrati

QUALI SONO LE DOMANDE ?

- **I bimbi sono troppo piccolo per tanti vaccini**
- **I vaccini non sono abbastanza provati**
- **I Vaccini causano altre malattie**
- **I Vaccini contengono pericolosi ingredienti**

Alcuni miti antivaccini

- "non sono contro i vaccini, ma per vaccini sicuri
- I Vaccini sono tossici
- Una richiesta di prove assolute
- I Vaccini non ci hanno salvato
- I Vaccini sono "innaturali"
- Scegliere tra "danno da vaccini" e malattia

Vaccines: Then and Now

Year	Number of Vaccines	Number of Immunologic Components
1900	1	~200
1980	7	~3,041
2013	14	~150

Troppi vaccini insieme ?

- I bambini hanno la capacità immunitaria per rispondere a circa 10,000 antigeni in un singolo giorno.
- Quando diamo ad un bimbo 11 antigeni vaccinali in una sola iniezione, mobiliziamo il 0,1% del suo sistema immunitario.
- Ma in pochi giorni dopo l'iniezione le cellule immunitarie usate sono costantemente rimpiazzate .
- Infatti il sistema immunitario ha la capacità di rifornire più di 2 miliardi di cellule immunocompetenti CD4.

Offit P.O.Adressing parent's concerns...
Pediatrics 109 1 2002

Un bimbo può produrre simultaneamente anticorpi verso molti antigeni ?

- I dati disponibili dimostrano che la capacità teorica di rispondere alla vaccinazioni è superiore a produrre più di 100 miliardi di diversi linee di anticorpi

Abbas AK et al.»cell mol immunol» WB Saunders 1994

Domanda:
I vaccini non sono sufficientemente testati:

- Ogni vaccino è studiato in tre fasi estesamente :
  - Fase I
  - Fase II
  - Fase III
- Gli studi includono la somminstrazione concomitante di più vaccini.
- Dopo la registrazione vengono effetuati ampi studi di campo (Fase IV)

Nessun altro farmaco è studiato quanto un vaccino !!!!
Vedi la Cochrane vaccine library !!!

Domanda:
I Vaccini causano malattie
ma è ben dimostrato che :

- I Vaccini non causano:
  - Autismo
  - SIDS
  - Diabete
  - Sclerosis Multipla
  - Guillian-Barré syndrome
  - Asma
  - Allergie

- Ogni sospetto problema di un vaccino è studiato a fondo ; ogni sospetta associazione tra vaccino e danno alla salute provoca la sospensione del prodotto.

Domanda:
I Vaccini contengono ingredienti pericolosi .

- L' Alluminio è usato come adiuvante.
- Mangiamo ogni giorno molto più alluminio di quello dei vaccini
- Studi longitudinali hanno dimonstrato che non c'è alcun danno dai Sali di mercurio nei vaccini
- Comunque I Sali di Mercurio sono stati precauzionalmente rimossi da tutti I vaccini 10 anni fà

Associazione temporale tra vaccini e patologie

- Nei primi 24 mesi di vita i bimbi ricevono 12 vaccini in dosi multiple
- Qualsiasi evento di salute del bimbo cade necessariamente vicino ad una vaccinazione
- L'associazione temporale tra un cattivo evento di salute ed una vaccinazione ha un alta probabilità
- Può l'associazione temporale essere considerata causa della malattia ??

Rischi della malattia e degli effetti collaterali da vaccino

Rischi relativi alla malattia	Rischi relativi alla vaccinazione
Morbillo [32] Polmonite: 1/20 Encefalite:1/2000 Morte: 1/3000 **Parotite [33]** Encefalite: 1/300 **Rosolia [34]** Rosolia congenita: 1/4 se contratta ad inizio gravidanza	**Vaccino MPR [37]** Encefalite o reazione allergica severa: 1/1.000.000
Difterite [35] Morte: 1/20 **Tetano [http://www.cdc.gov/tetanus/clinicians.html#symptoms]** Morte: 3/100 **Pertosse [36]** Polmonite: 1/8 Encefalite: 1/20 Morte: 1/20	**Vaccino DTP [38]** Pianto inconsolabile poi completo recupero: 1/100 Convulsioni o shock poi completo recupero: 1/1.750 Encefalopatia acuta: 0-10,5/1.000.000 Morte: non provata

Varicella **Incidenza:** 4.000/100.000 [39] **Letalità:** 4-9/100.000 [40, 41] **Ospedalizzazione:** 1,3-4,5/100.000 [42] **Complicanze neurologiche:** 0,4-10,1% dei pz ospedalizzati [42] **Polmonite** 5-14% casi [43] **Sovrainfezioni cute:** 36% dei pz ospedalizzati [44]	**Vaccino Varicella [54]** Soggetti sani di età compresa tra 12mesi e 12 anni (1 dose) **Rash simil varicella**: 3,8% **Polmonite:** < 1% **Convulsioni Febbrili:** < 0,1% **Reazioni allergiche gravi:** < 0,01%
Meningococco **Incidenza:** 500.000 casi nel mondo [45] 1–3 casi /100 000 [46] **Letalità**: 10% [45] **Complicanze:** 25% (amputazioni; perdite di tessuto cutaneo; anomalie neurologiche: emiplegia, ritardo mentale, epilessia, sordità neurologica; conseguenze psicologiche: disturbo post traumatico da stress, depressione, ansia). [47, 48]	**Vaccino Meningococcico [55]** **Non comune (da ≥1/1.000 a <1/100):** capogiro. **Molto raro (<1/10.000):** parestesia, reazioni anafilattiche
Pneumococco IPD esplicitare le sigle, magari in calce **Incidenza**:15-20/100.000, 25-90/100.000 nelle fasce d'eta' estreme della vita [49] **Letalità**: sepsi pneumococcica 15-20% tra gli adulti e a 30-40% in soggetti al di sopra dei 65 anni di età, meningite pneumococcica 12% [49] **Complicanze:** 40% dei sopravvissuti alla meningite presenta sequele neurologiche **Pneumococco Non IPD** **Incidenza CAP** :1,6-15/1.000 [50] **Mortalità CAP:** varia dal 5 al 15% tra gli ospedalizzati, 20-45% nei ricoverati in terapia intensiva, 40% in soggetti oltre gli 80 anni [50]	**Vaccino Pneumococcico [56]** **Raro (da ≥1/10.000 a <1/1.000):** reazioni di ipersensibilità compreso edema facciale, dispnea, broncospasmo, convulsioni (comprese convulsioni febbrili), rash, orticaria o rash orticarioide, reazione anafilattica, angioedema, episodio iporesponsivo-ipotonico, orticaria al sito di iniezione, prurito al sito di iniezione, vampate di calore, apnea in neonati molto prematuri **Molto raro (<1/10.000):** linfoadenopatia (localizzata nella regione del sito di iniezione), eritema multiforme

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Infezione da Haemophilus Influenzae (HiB) [51] **Incidenza della malattia invasiva:** 1/100.000 bambini di età ≤ 5 anni **Letalità:** 3%-6% **Complicanze:** 20% dei pazienti che sopravvivono alla meningite da Hib riportano perdita dell'udito e altre sequele neurologiche. Ogni anno si verificano 3.000 di casi di patologia invasiva e 386.000 morti.	**Vaccino HiB [57]** **Molto raro (<1/10.000):** reazioni allergiche, angioedema, episodi ipotonici-iporesponsivi, convulsioni, sincope o reazioni vasovagali all'iniezione, sonnolenza, apnea, orticaria, rash, gonfiore esteso dell'arto sede dell'iniezione, indurimento al sito di iniezione.
Poliomielite [52] **Incidenza annuale**: prima dell'introduzione del vaccino 11,4 casi/100.000, dopo OPV (Polio Virus orale), 0.002 - 0.005 casi VAPP (paralisi associata al vaccino polio)/ 100.000. Nel 1999 è stata adottata una schedula solo IPV per eliminare i pochi casi di VAPP. **Infezione asintomatica**: 95% **Infezione paucisintomatica** (febbre, debolezza, cefalea, nausea, sindrome simil-influenzale, rigidità nucale/spinale, dolore agli arti, spesso risolventisi completamente): 4-8% **Paralisi permanente:** 1% **Mortalità:** 5%-15% dei casi di poliomielite acuta paralitica	**Vaccino Poliomielite** **Molto comune (≥ 1/10):** Reazioni locali nel sito di iniezione (dolore, rossore, indurimento, edema) [58] VAPP: 1/2.4 milioni dosi OPV, non possibile con IPV [52]
Epatite B [53] **Incidenza:** 1,29 (UE)–1,5 (USA)/100.000 persone **Mortalità per epatite acuta:** 2 % **Cronicizzazione:** >30% bambini, <5% adulti **Complicanze post cronicizzazione:** cirrosi epatica 25%, cancro epatico 5%	**Vaccino Epatite B [59]** **Raro (da ≥1/10.000 a <1/1.000):** linfoadenopatia, artralgia, parestesia, orticaria, prurito e rash. **Molto raro (<1/10.000):** >> Sorveglianza post-marketing: trombocitopenia, encefalite, encefalopatia, convulsioni, paralisi, neurite, neuropatia, ipoestesia, apnea in neonati molto prematuri (≤alle 28 settimane di gestazione), eritema multiforme, edema angioneurotico, lichen planus, artrite, debolezza muscolare, meningite, vasculiti, ipotensione, anafilassi, reazioni allergiche incluse reazioni anafilattoidi e sindrome simil malattie da siero.

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Obbligo vaccinale

- L' obbligo non è sola responsabilità dei genitori
- L'obbligo vaccinale è un dovere per i medici : sono pagati per garantire il diritto alla prevenzione vaccinale !!
- I medici dubbiosi sulle vaccinazioni vanno contro la loro vocazione professionale e lavorano contro la comunità !

responsabilità

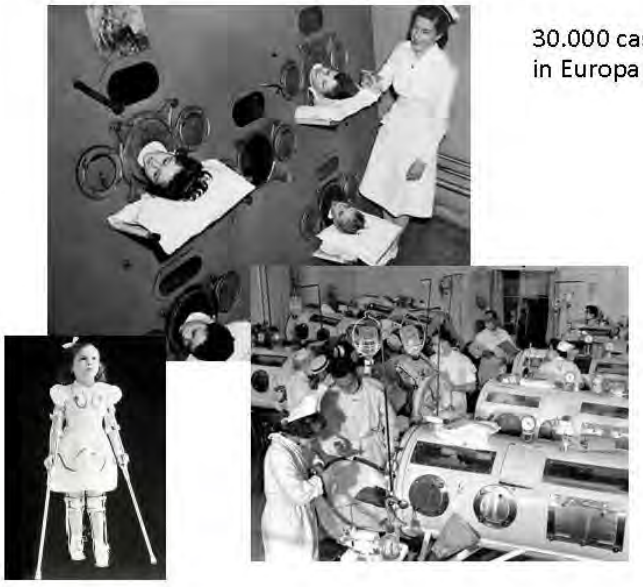
- Tutti i trattamenti medici includono anche minimi rischi per il paziente !
- Gli operatori sanitari sono gente che, per vocazione e libera scelta, accettano di caricarsi di alcuni rischi per la terapia che offrono ai pazienti.
- La gran parte dei farmaci ha effetti collaterali ben superiori die vaccini !!
- Ma queste storie non fanno rumore!!

Una regola Matematica !!

- Più ignoranza ed impreparazione della popolazione e dei medici
- Minore la copertura vaccinale !!!

- Aiutata da corruzione e disorganizzazione !!

I grandi successi in campo vaccinale hanno alimentato una visione miracolistica della vaccinazione



30.000 casi annuali di poliomielite in Europa in epoca prevaccinale

40

… ma hanno di conseguenza prodotto forti movimenti di opposizione quando gli effetti delle vaccinazioni non sono stati più talmente evidenti.

Un ulteriore approccio "miracolistico" in questa fase storica non può essere che controproducente.

Oggi più che mai è necessaria una strategia comunicativa pacata, basata su evidenze ed estremamente trasparente.

41

Elementi di una teoria del complotto

42

Cosa alimenta le teorie del complotto

1. L'idea di un complotto è più attraente della nuda e banale verità
2. Informazioni chiare e convincenti non sono facilmente disponibili e il parere degli esperti non è unanime
3. L'esistenza di "precedenti"
4. Errori nella gestione di un evento da parte delle autorità
5. Una sfiducia di fondo nelle autorità
6. In ogni evento esiste sempre chi trae benefici diretti o indiretti. E' facile attribuire a ciò il ruolo di causa e non di effetto

43

L'esistenza di "precedenti"

660 *Journal of the Royal Society of Medicine Volume 72 September 1979*

Guillain–Barré syndrome: the swine influenza virus vaccine incident in the United States of America, 1976–77: preliminary communication[1]

Professor Alexander D Langmuir MD MPH[2]
Harvard University, Cambridge, Massachusetts and Center for Disease Control, Atlanta, Georgia

Introduction

The four months from October 1976 to January 1977 were in two respects unique in the annals of epidemiology in the United States of America. First, more than 40 million adult citizens were vaccinated with swine influenza virus vaccine, a remarkable response to a nationally sponsored programme based on the prediction of the probability of an impending epidemic (Schonberger *et al.* 1979). Second, during the same period more than 500 cases of Guillain–Barré syndrome (Landry 1859, Guillain *et al.* 1916) occurred among the vaccinated persons, with 25 deaths.

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Un'altra bufala : autismo e vaccini !!

MASTER DI II LIVELLO IN **EPIDEMIOLOGIA & BIOSTATISTICA** 45


Flu vaccine contains mercury
Simnott expresses concern over thiomersal
Outdated vaccine was given to 12,000 children
Measles vaccine linked to autism
Virus found in gut of 24 out of 25 child victims
Probe into meningitis vaccine after 11 babies die
GPs lack life-saving vaccine antidote
MENINGITIS VACCINE CHILD IS IN A COMA
PRESS CUTTINGS
DOCTORS' WARNING OVER LETHAL MENINGITIS JAB
Be aware of danger to children, parents are told
PRESS CUTTINGS


Autistica dopo il vaccino: risarcisce
Il tribunale di Busto è il primo in Italia ad avere condannato il ministero della Salute.
Donna investita mentre attraversa corso Italia
VareseNotizie
L'internet quotidiano
prealpiservizi
Il nostro impegno
Si vaccinano e rimangono semi-paralizzate
LA STAMPA it CRONACA
In un anno 396 vittime del vaccino
"There is a great deal of evidence to prove that immunization of children does more harm than good."
Dr. J. Anthony Morris, former Chief Vaccine Control Officer and research virologist, US FDA

Una sfiducia di fondo nelle autorità

- In Europa è stato abbastanza evidente un gradiente "Nord-Sud" nella accettazione della vaccinazione pandemica antiinfluenza
- In Svezia più del 70% degli operatori sanitari si sono vaccinati
- Copertura vaccinale negli operatori sanitari*:
  - Irlanda: 40%;
  - Olanda: 50%;
  - Italia: 15%

** stime non ufficiali*

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Piano Nazionale Prevenzione Vaccinale

PNPV 2016-2018

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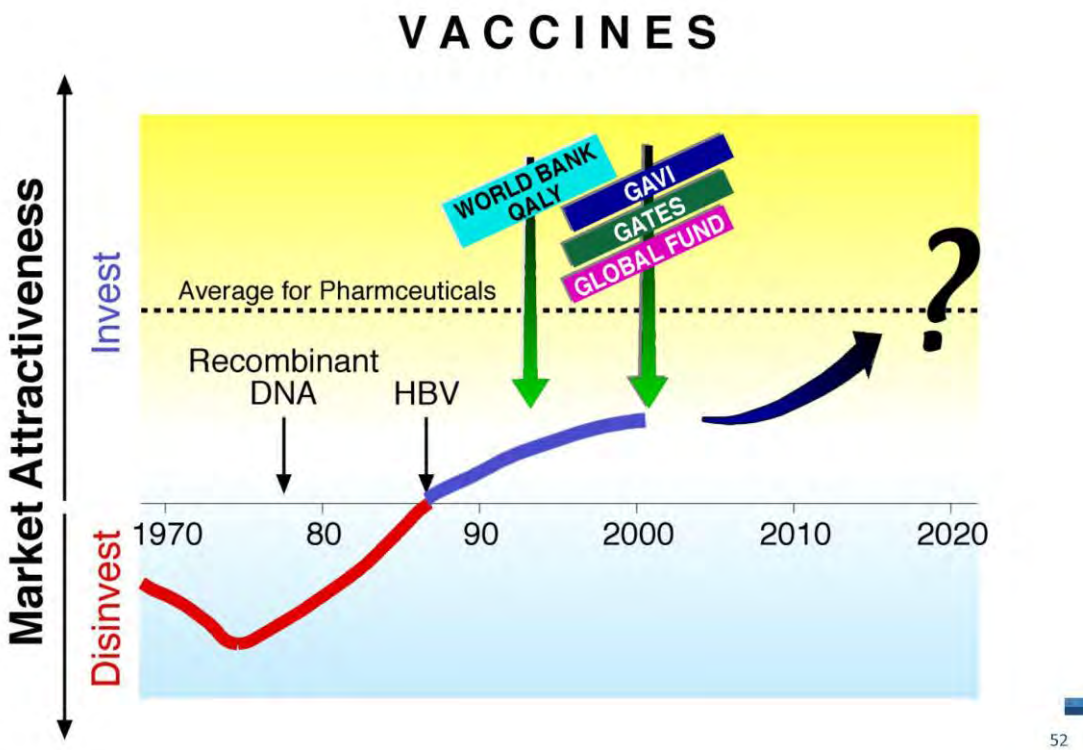
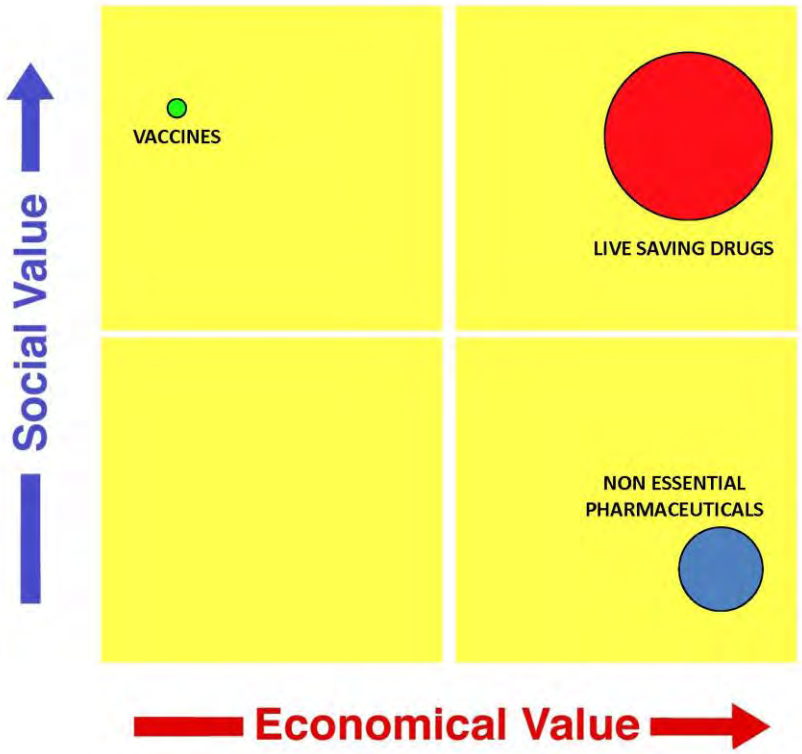
calendario vaccinale

Vaccino	0gg-30gg	3° mese	4° mese	5° mese	6° mese	7° mese	11° mese	13° mese	15° mese	⇨	6° anno	12°-18° anno	19-49 anni	50-64 anni	> 64 anni
DTPa**		DTPa		DTPa			DTPa				DTPa***	dTpaIPV	1 dose dTpa**** ogni 10 anni		
IPV		IPV		IPV			IPV				IPV				
Epatite B	EpB-EpB*	Ep B		Ep B*			Ep B						3 Dosi: *Pre Esposizione* (0, 1, 6 mesi) 4 Dosi: *Post Esposizione* (0, 2, 6 sett. + booster a 1 anno) o *Pre Esposizione imminente* (0, 1, 2, 12)		
Hib		Hib		Hib			Hib								
Pneumococco		PCV		PCV			PCV	PCV^^			PCV/PPV23 (vedi note)				PCV
MPRV								MPRV			MPRV				
MPR								MPR			*oppure* MPR + V	MPR	MPR + V^	2 dosi MPR***** + V^ (0-4/8 settimane)	
Varicella									V						
Meningococco C								Men C o MenACW Y coniugato	Men C o MenACWY coniugato						
Meningococco B^		Men B	Men B		Men B			Men B	Men B						
HPV												HPV°: 2-3 dosi (in funzione di età e vaccino): fino a età massima in scheda tecnica			
Influenza						Influenza°°						Influenza°°			1 dose all'anno
Herpes Zoster															1 dose#
Rotavirus		Rotavirus##													
Epatite A									EpA###			EpA###		2 dosi (0-6-12 mesi)	

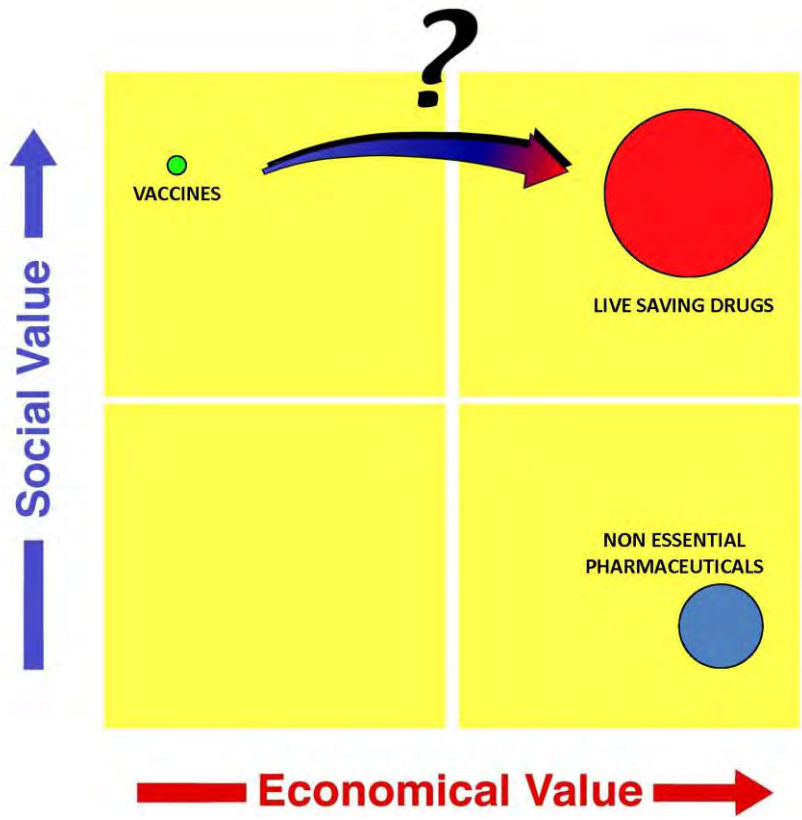
51



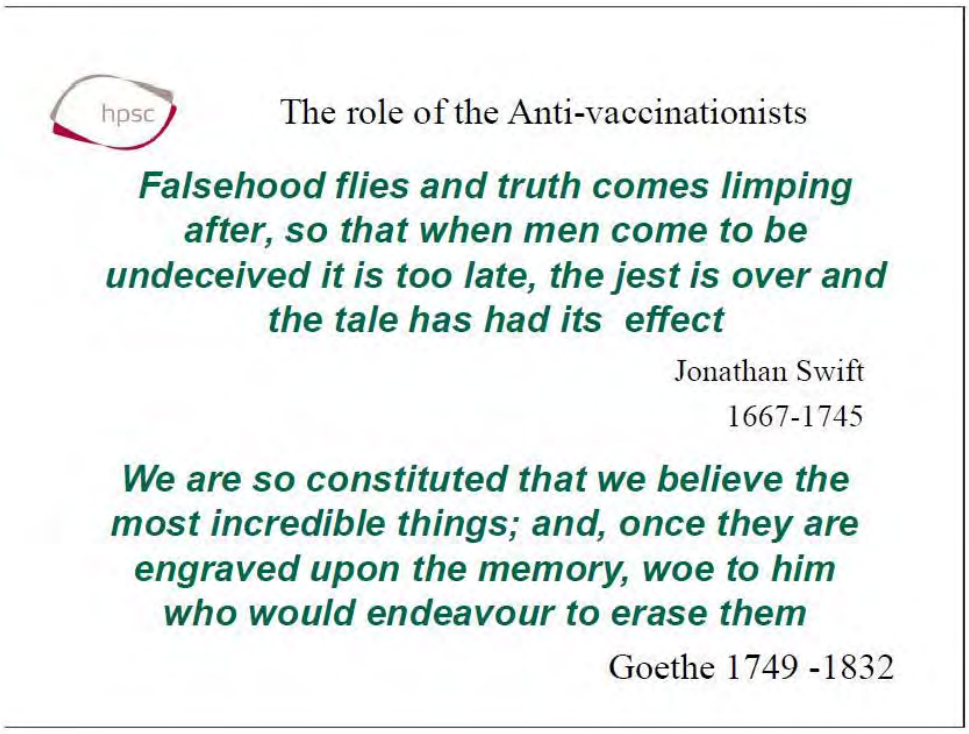
52


VACCINES
LIVE SAVING DRUGS
NON ESSENTIAL
PHARMACEUTICALS
Social Value
Economical Value

53


?
VACCINES
LIVE SAVING DRUGS
NON ESSENTIAL
PHARMACEUTICALS
Social Value
Economical Value

54

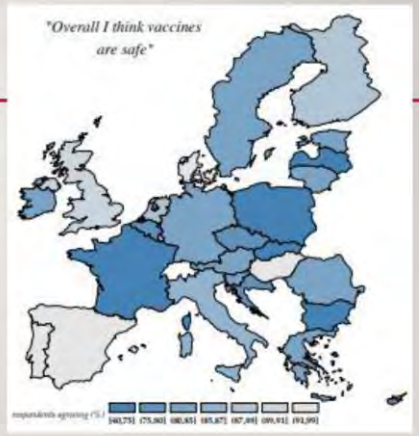

hpsc
The role of the Anti-vaccinationists
Falsehood flies and truth comes limping after, so that when men come to be undeceived it is too late, the jest is over and the tale has had its effect
Jonathan Swift
1667-1745
We are so constituted that we believe the most incredible things; and, once they are engraved upon the memory, woe to him who would endeavour to erase them
Goethe 1749 -1832


Vaccinazioni, movimenti anti-vaccinazioni e comunicazione
VACCINI: ASCOLTARE E PARLARE CON LE PERSONE
EMILIO MORDINI – medico psicoanalista – www.emiliomordini.info – emilio.mordini@rtexpert.com
WP 10
Risk
Communication
compare

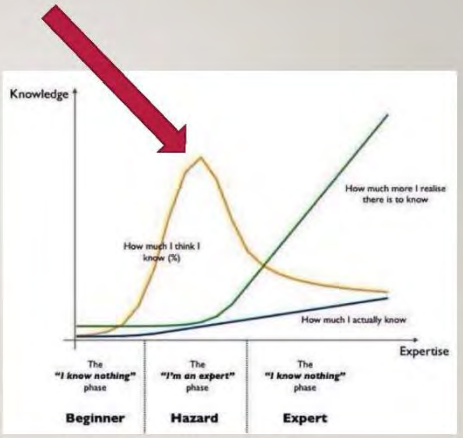

VACCINI

DOVE E CHI

- I paesi nei quali le varie forme di esitazione e rifiuto vaccinale sono più diffuse sono anche gli stati in cui sembra essere più alto il livello di educazione scientifica degli abitanti (ad es. Francia in EU e California in USA)
- In gran parte dei singoli paesi le varie forme di esitazione e rifiuto vaccinale sono più diffuse tra i giovani che tra gli anziani, tra i ceti più abbienti che tra quelli disagiati



MANCANZA DI FIDUCIA PER PRESUNZIONE



CLASSIFICAZIONE ECDC GENITORI RILUTTANTI A VACCINARE I FIGLI
(ESTENSIBILE ANCHE AI RILUTTANTI A VACCINARE SE STESSI)

ESITANTI – preoccupati della sicurezza e loro stessi insicuri

DISINTERESSATI – bassa percezione del rischio delle malattie per cui sono proposti determinati vaccini

ANTIVACCINISTI – rifiuto esplicito e forti convinzioni personali contro ogni vaccino

ESCLUSI – economicamente e socialmente svantaggiati con accesso limitato alle vaccinazioni

RILUTTANZA VACCINALE

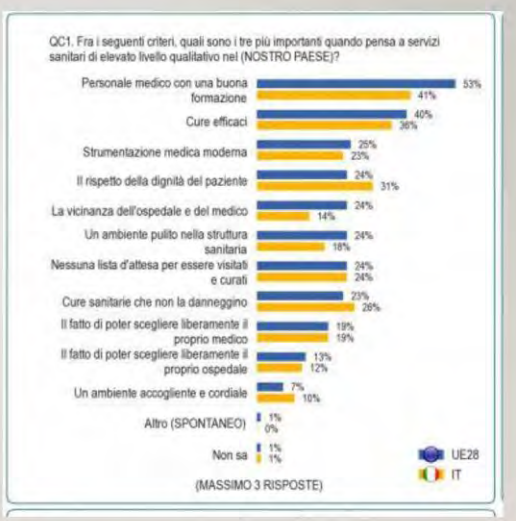
Non nasce da un giudizio razionale (e difficilmente può essere affrontata con argomenti razionali) ma da importanti fattori culturali e paure collettive, sostenuti da una sostanziale perdita di fiducia nei confronti del medico e delle istituzioni sanitarie

DECISIONE DI NON SEGUIRE I CONSIGLI DEL MEDICO

LA RILUTTANZA A VACCINARSI È SOLO IL PICCO DELL'ICEBERG

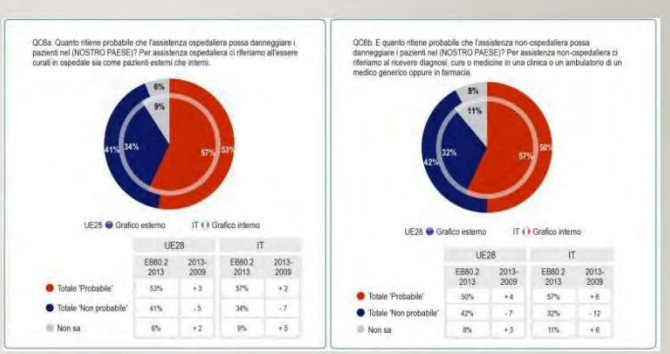
SONDAGGIO EUROBAROMETER 2015

Il medico e le istituzioni sanitarie sono ancora considerate fonti degne di fede?



SONDAGGIO EUROBAROMETER 2015

Rischio di essere danneggiati



COSA STA SUCCEDENDO?

CARDUCCI (PREMIO NOBEL PER LA LETTERATURA 1906 E PROFESSORE DI GINNASIO)

PROFESSORESSA DI PADOVA PICCHIATA DA UNA MADRE (SCUOLA MEDIA ALBINONI DI SELVAZZANO 06 SETTEMBRE 2018)

COME MAI?

Dati GOOGLE Trend 2018

PERCENTUALI DI ACCESSO A INTERNET IN ITALIA

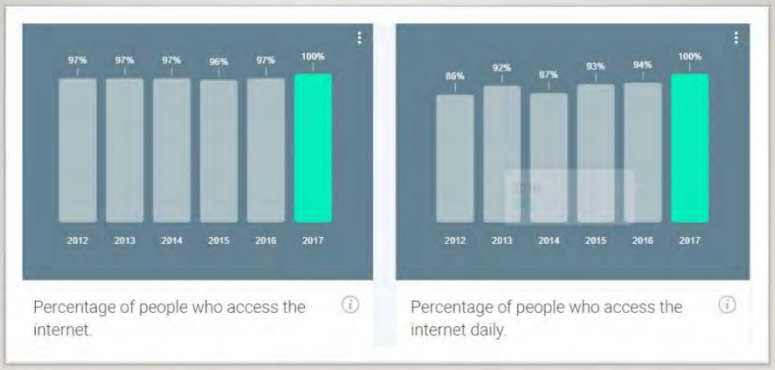
Percentage of people who access the internet.

Percentage of people who access the internet daily.

Dati GOOGLE Trend 2018

PERCENTUALI DI ACCESSO A INTERNET IN ITALIA

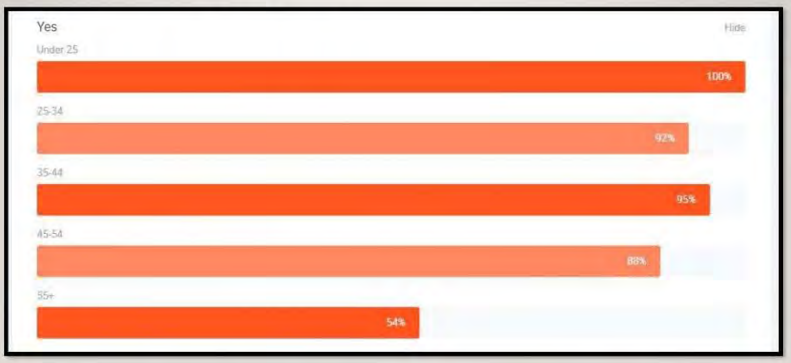
(eta' inferiore a 25 anni)

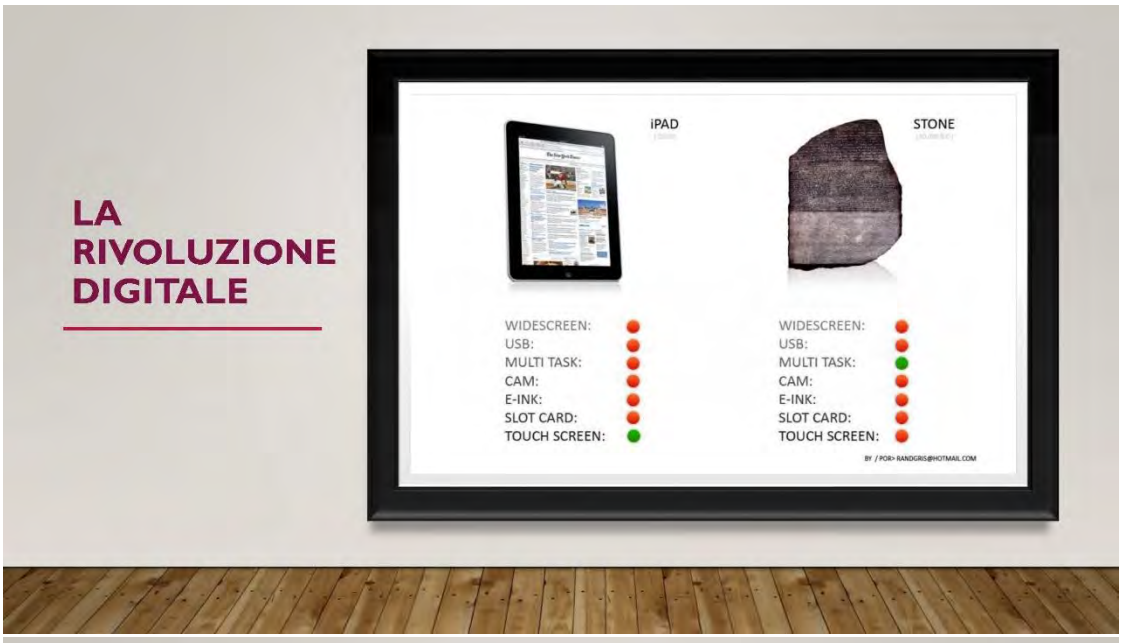


Dati GOOGLE Trend 2018

Internet per ragioni personali non di studio o lavorative

(incluse informazioni sulla propria salute)




LA
RIVOLUZIONE
DIGITALE
iPAD
STONE
WIDESCREEN:
USB:
MULTI TASK:
CAM:
E-INK:
SLOT CARD:
TOUCH SCREEN:
WIDESCREEN:
USB:
MULTI TASK:
CAM:
E-INK:
SLOT CARD:
TOUCH SCREEN:


Orale, scritto, digitale
IL LUOGO DELLA REALTÀ
La parola pronunziata
Quod scripsi, scripsi
La rete


Orale, scritto, digitale
IL CONTRATTO
Signature is VALID, signed by Test Cert <test>.
Summary
Document
Signer
Date/Time
Legal
Signed by:
Test Cert <test>
Reason:
This is a demo version
Date:
2009/03/20 11:46:38 +02'00'
Location:
Validity Summary
The Document has not been modified since this signature
The document is signed by the current user.
Signature is timestamped.
Il patto
La firma
Il time stamp


Passagio tra oralità e scrittura
CRITERIO DI VERITÀ
WIKIPEDIA
The Free Encyclopedia
Discepolo e testimone
Testo originale
Sapienza della folla

LA SAPIENZA DELLA FOLLA (crowd wisdom)

La teoria sociologica secondo la quale una massa di individui inesperti sarebbe comunque in grado di fornire una risposta adeguata e valida a una domanda più di quanto non siano in grado di farlo un singolo o un gruppetto di esperti

- **Diversità di opinione**: ogni persona deve avere un'opinione differente
- **Indipendenza**: le opinioni delle persone non devono venire influenzate da quelle altrui
- **Decentralizzazione**: nessuno deve essere in grado di pilotarla dall'alto
- **Aggregazione**: le opinioni devono poter essere aggregate in modo da ottenere un risultato finale

DUE TIPOLOGIE DI PAZIENTI PROBLEMATICI

IL PAZIENTE ESPERTO

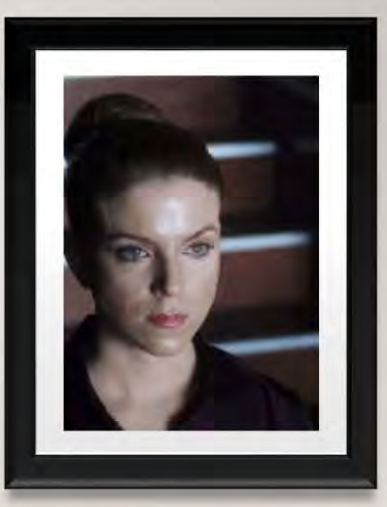
IL PAZIENTE AGGRESSIVO

ASCOLTARE SIGNIFICA

- Avere un vero interesse e curiosità anche nei confronti di pazienti esperti o aggressivi
- Rispettare il paziente che si crede esperto e non cercare di umiliarlo
- Essere fermi con il paziente aggressivo lasciandolo però parlare
- Ascoltare tutto quello che una persona dice (non distrarsi o tagliarle il discorso se ci sembra che non dica che le cose che ci interessano)
- Cercare di mettersi in alcuni momenti dal punto di vista della persona, anche fosse palesemente sbagliato o addirittura patologico

LA MEDICINA EVIDENCE BASED È COMPATIBILE CON L'ASCOLTO?

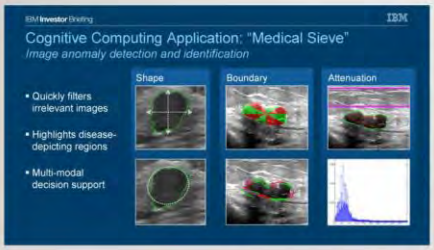
Sempre più spesso il medico è portato a non ascoltare ma soltanto a raccogliere i dati rilevanti che si sono dimostrati tali alla luce dell'evidenza, questo permette di risparmiare tempo e denaro e di produrre prestazioni migliori e più efficienti. La questione, però che questa attività può essere svolta altrettanto bene dall' Intelligenza Artificiale

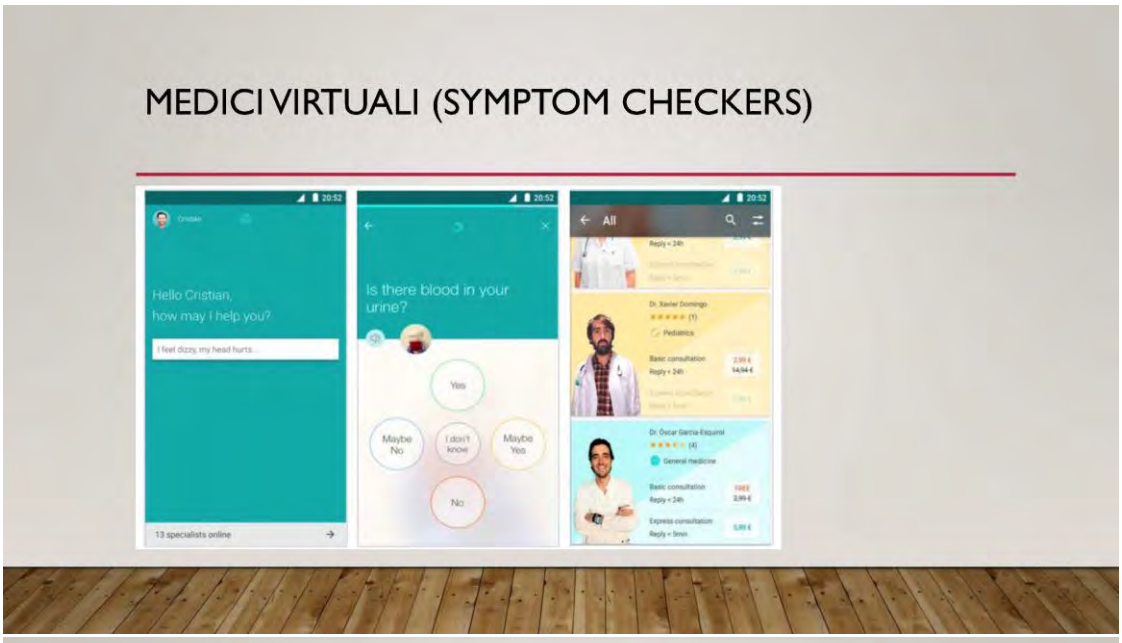


RACCOLTA E COMPARAZIONE DI DATI MEDICI

PROTOCOLLI E PIANI TERAPEUTICI

DECISIONI CLINICHE IN AMBITO SPECIALISTICO




MEDICI VIRTUALI (SYMPTOM CHECKERS)
Hello Cristian,
how may I help you?
I feel dizzy, my head hurts...
13 specialists online
Is there blood in your urine?
Yes
Maybe No
I don't know
Maybe Yes
No
All


AUTOMAZIONE NEL SETTORE SANITARIO
Automation Will Kill Thousands Of Healthcare Jobs, And That's Good News For Big Insurers
Is your clinical job safe from automation?
Well, the good news is that doctors beat the robots more than two to one in a recent study.
Lily Martis, Monster staff
County-level job automation risk and health: Evidence from the United States
Pankaj C. Patel, Srikant Devaraj, Michael J. Hicks, Emily J. Wornell
How Will Automation Affect Healthcare Jobs?
Will automation take over healthcare jobs? Industry experts share their opinion
By Charlotte Edwards
Work gives our lives meaning. What will we do when robots have taken our jobs?

DECIDERE IL BENE DEL PAZIENTE

- Un medico può fare ciò che nessun software potrà mai fare: giudicare con sufficiente approssimazione quale siano **il bene e la salute particolare per quello specifico essere umano che gli è in quel momento di fronte, questo vale anche per la scelta di vaccinarsi o far vaccinare**
- **Un medico dove essere chiaro e concreto, per lui la salute deve essere la salute e il bene particolari della persona che ha di fronte non un astratto concetto desunto da studi epidemiologici.**

ATTENZIONE AL BUON SENSO SCIATTO

- Tuttavia questo discorso può diventare pericoloso perché può finire per giustificare **un «buon senso terapeutico» sciatto e annoiato**, che banalizza e mette tra parentesi le evidenze scientifiche e **non offre al paziente le migliori diagnosi e trattamenti possibili**

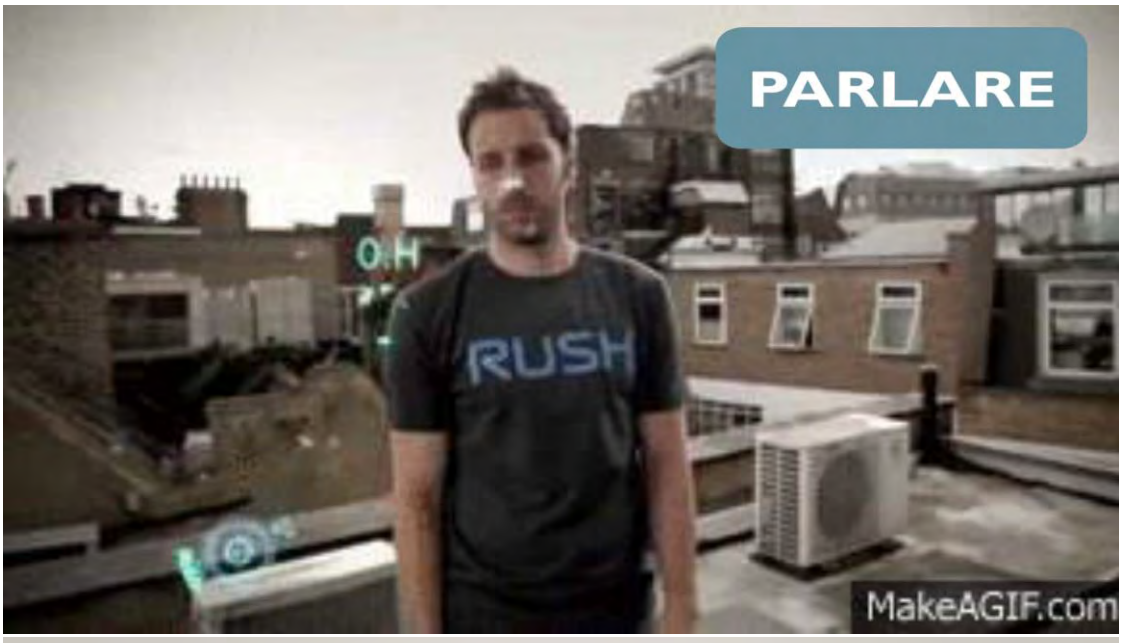
EVIDENCE BASED MEDICINE + ASCOLTO

- Il medico dovrebbe quindi assumere una posizione quasi "schizoide», cioè da un lato dovrebbe sempre aver ben presente le evidenze scientifiche
- Ma dall'altro dovrebbe anche prestare un'attenzione scrupolosa, quasi maniacale, all'ascolto delle persone concrete che ha difronte a sè

TEMPO E DISPONIBILITÀ

Ma un medico di base, dei servizi, ospedaliero ha il tempo e la disponibilià umana per dedicarsi ad un simile esercizio?

Probabilmente no, tuttavia, comunque, è importante che il medico sia almeno consapevole di questa necessità anche se poi, per mille ragioni, non riesce a metterla in pratica.



PARLARE

- Sviluppare il senso del tempo opportuno
- Mostrare cortesia ed ospitalità
- Avere senso del ridicolo
- Chiarezza e semplicità

TEMPO

Prudenza (non affrontare l'argomento dei vaccini se la persona è troppo aggressiva o angosciata dalla decisione)
Tempestività (affrontare l'argomento non appena si percepisce la voglia del paziente di parlare non per contrastare il medico ma per chiedere consiglio)
Tacere ed ascoltare e parlare con gesti ed atteggiamenti, parlare attraverso l'ascolto

OSPITALITÀ

Cortesia che significa attenzione alle esigenze dell'ospite
Fermezza nelle proprie convinzioni sui vaccini ma anche **rispetto** per le convinzioni altrui
Parlare attraverso **storie, aneddoti, esempi**
Rassicurare ma **non essere complice** (non cercare di spaventare il paziente però prospettargli i rischi di non vaccinare/si)

SENSO DEL RIDICOLO

Non entrare in competizione con internet (il criterio di verità oggi è sempre più spesso "la saggezza della folla")
Non predire il futuro
Evitare il **gergo medico** se è necessario usare **termini tecnici, spiegarli** sempre
Quando ve n'è bisogno parlare sempre con **chiarezza e semplicità**

RICORDARSI CHE LA SEMPLICITÀ NON È MAI SEMPLICE

Amai trite parole che non uno

Osava. M'incantò la rima fiore

Amore.

La più antica difficile del mondo

Umberto Saba, Amai, 1961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