Infodemic management as part of health system response in health emergencies

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Infodemic management

infodemic:
→ too much information including false or misleading information in digital and physical environments during an acute public health event, which leads to confusion, risk-taking and behaviors that can harm health, and lead to mistrust in health authorities and public health response

infodemic management:
→ systematic use of evidence-based analysis and interventions to manage the infodemic, mitigating harmful effects of health misinformation and on health behaviors during acute health events

Technology has changed the way information is produced, distributed and consumed

VS.

- An infodemic can enlongate or amplify an outbreak if enough people change their behavior based on misinformation they receive through their personal interactions or because of lack of trust.
- Infodemics are amplified in the virtual space
- Managing the infodemic has become more challenging with rapid spread of mis- and dis-information through digital media
- Managing the infodemic is critical to managing the pandemic

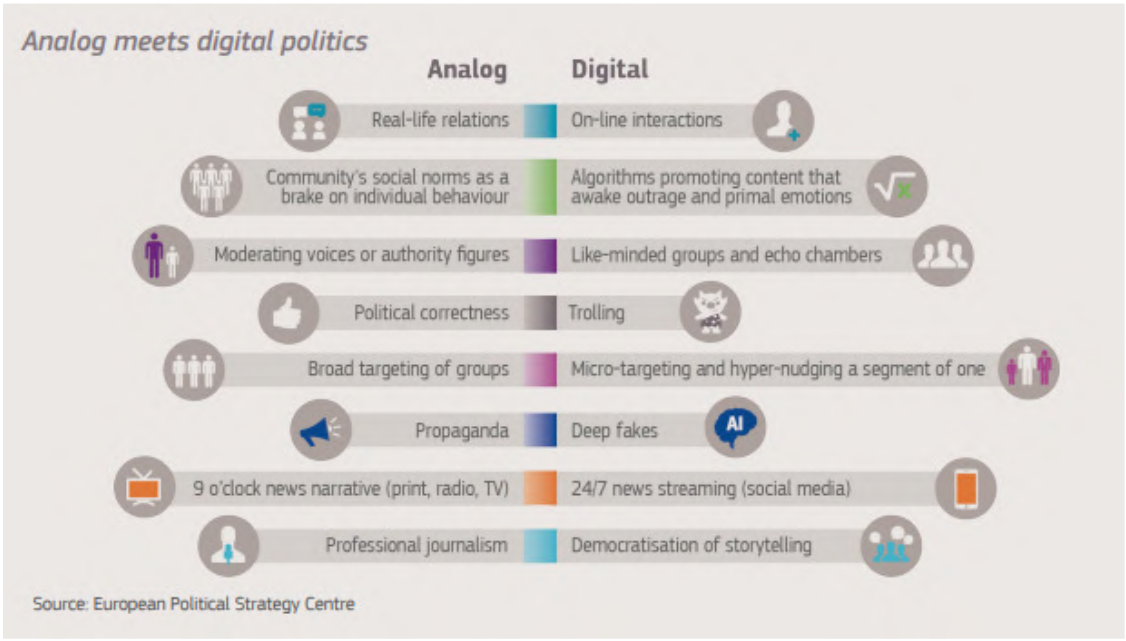
The rules and media and information dissemination have changed.

Everyone is an author, editor and disseminator.

The digitised society of 21st century

1980
World Health Assembly declares smallpox eradicated

Dr. Halfdan Mahler
WHO Director-General

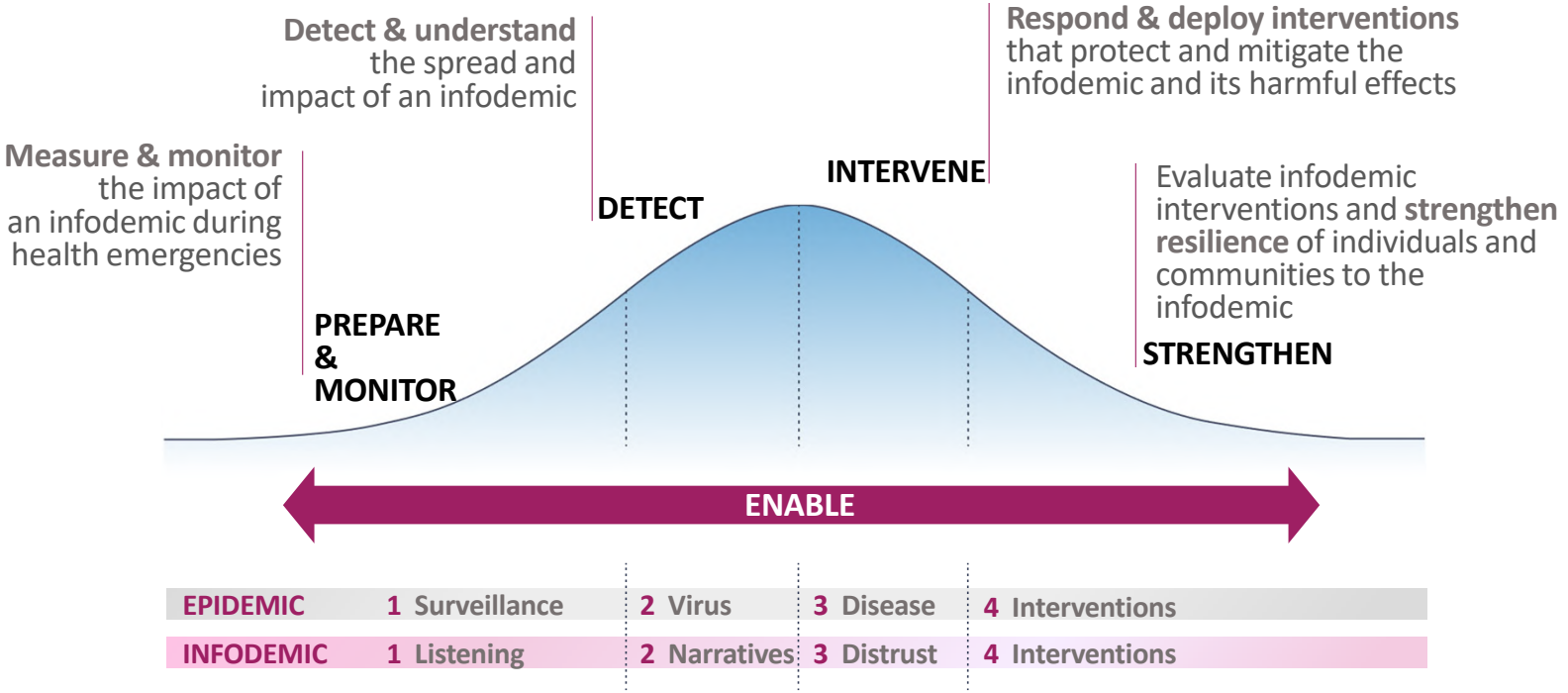


2020
WHO transformation
COVID-19 pandemic
DG declares infodemic

Dr. Tedros Adhanom Ghebreyesus
WHO Director-General

The diseases may have changed, the world has become digitized and interconnected, so the pandemic preparedness and response must adapt too

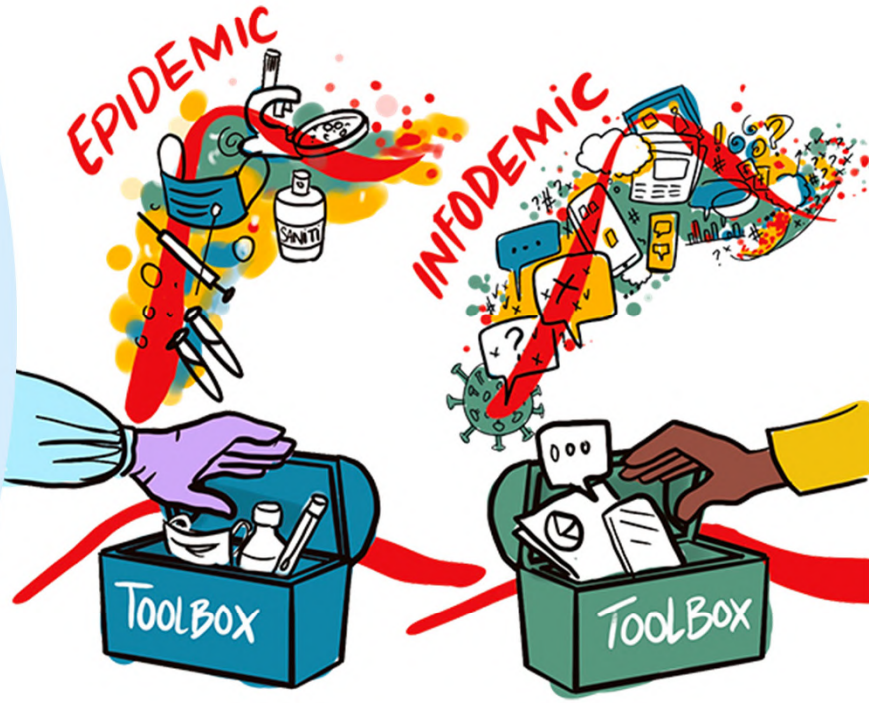
To manage the infodemic, we need an evidence-based framework, like that of epidemiologists



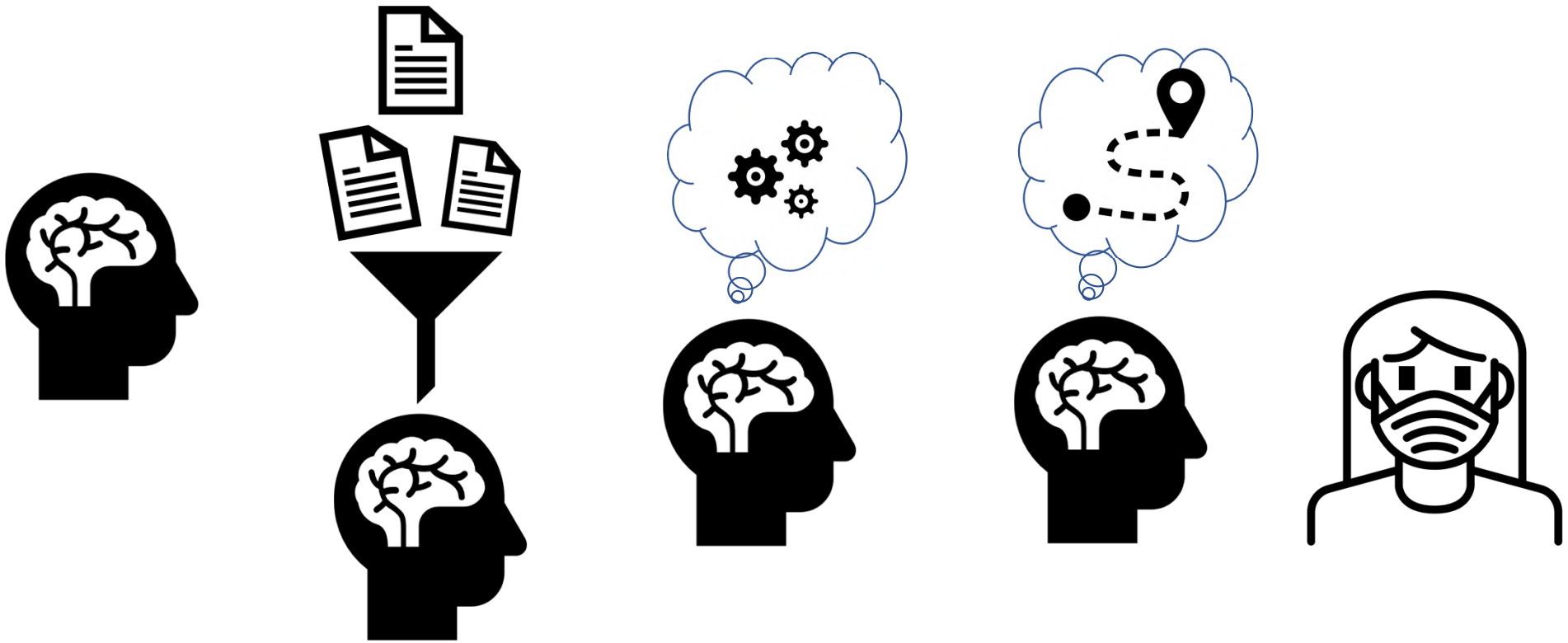
Infodemic management interventions aim to influence health behaviours

The right information at the right time, in the right format

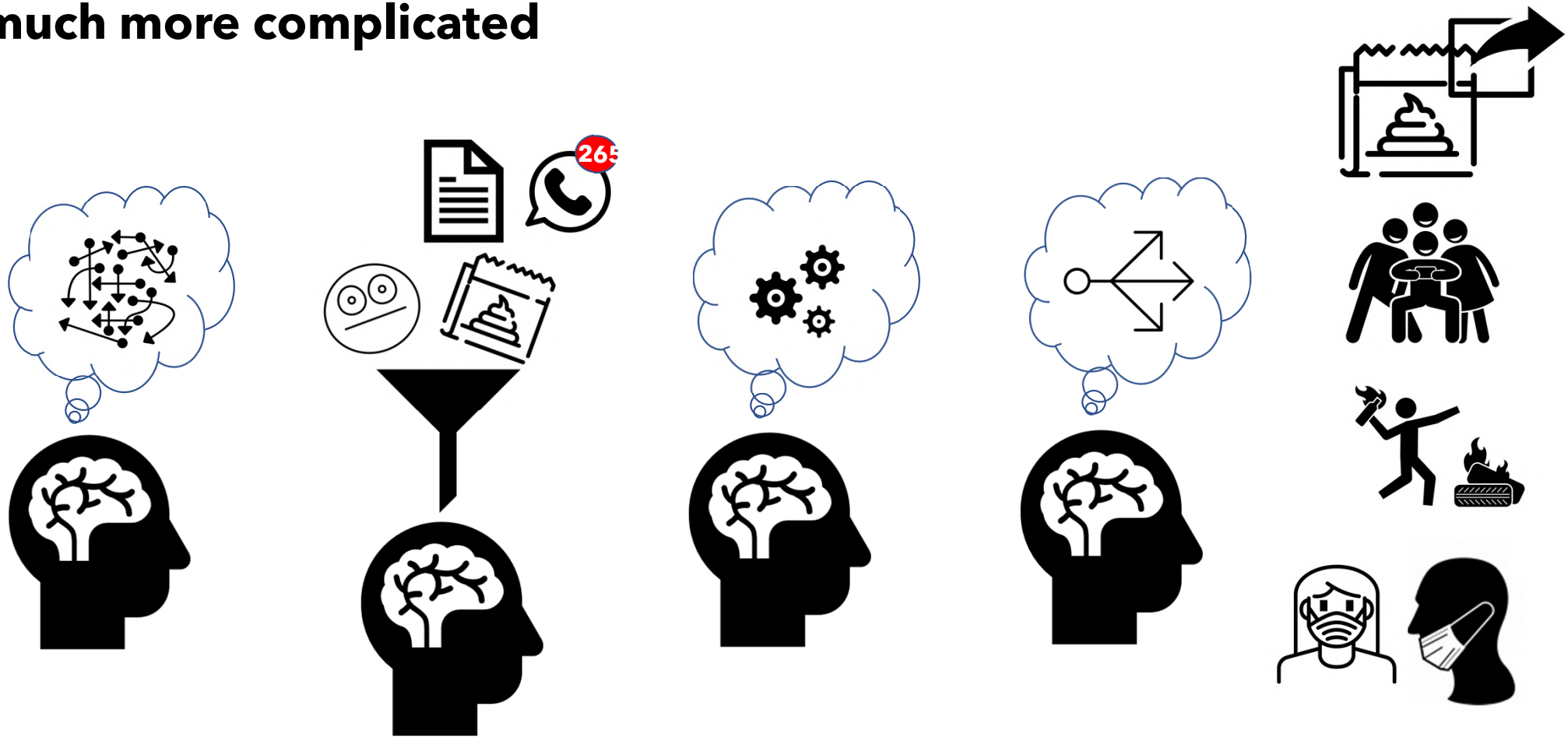
- While it is not possible to completely eliminate, **it *is* possible to manage the infodemic**
- Infodemic management aims to ensure people have **access to high-quality health information in the right format when they need it and that they have the resilience to information overflow, anxiety and misinformation to** rapidly adopt behaviours to protect their health and the health of others during an epidemic
- Infodemic management must :
  - Based on science and evaluation
  - Rely on evidence-based interventions
  - Evolve its practices, based on sharing of experiences and continuous learning
  - Be human-centred and community-based



Often, assumptions are made about what makes people enact healthy behaviors



How people receive, process and act on information is much more complicated



Cognitive overload

Knowledge

Understanding?

Intent

Action

Infodemic Management

The science – the practice – the tools, methods and interventions

08 Applied Math & Data Science

07 Epidemiology & Public Health

06 Digital Health & Technologies

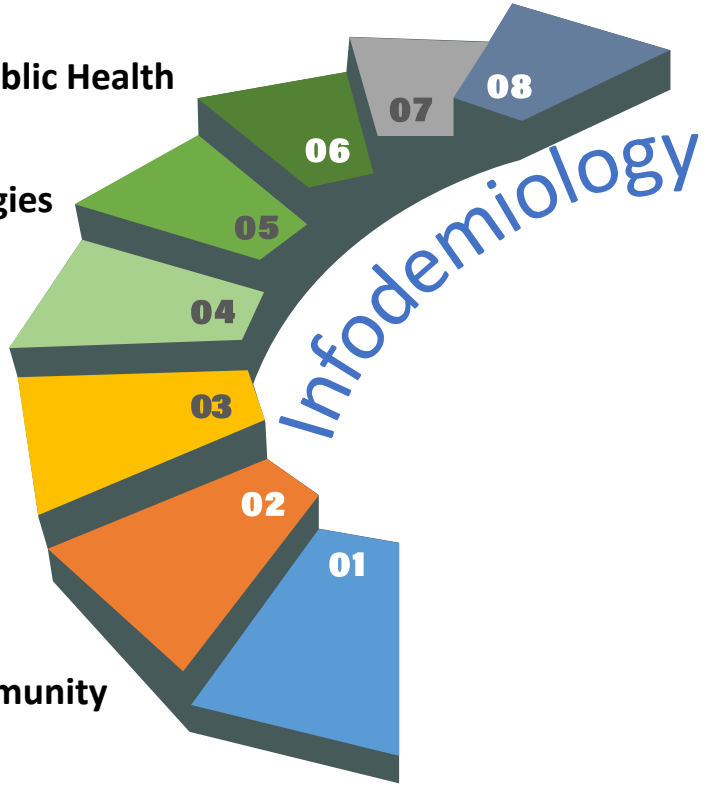
05 Social & Behavioral Science

04 Media Studies & Journalism

03 Marketing, UX & Design

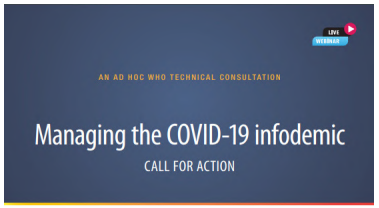
02 Risk Communication & Community Engagement

01 Ethics & Governance



Developing infodemic management at WHO

1 Develop the framework, strategy and action plan



World Health Organization | infodemic MANAGEMENT

2 Develop the science

3 Develop country tools and partnerships

4 Develop the profession

You are the engine that will place infodemic management within communities and promote community resilience

Thank you!

Key assumptions and operational environment

- Because infodemic management is a nascent field, sometimes programme decisions or programme design is created **based on limited evidence** and therefore care needs to be taken that **implementation includes a strong evaluation and implementation research component**.
- There is a common understanding that **infodemic management is not only about mis- or disinformation, but the overwhelming amounts of information that citizens are subject to, both online and offline.**
- Infodemic management requires **multiple skillsets**, types of training which are often not found within one individual or one programme.
- Infodemic management will always **operate on incomplete data** that is not representative of the general population's exposure or behaviors related to misinformation.

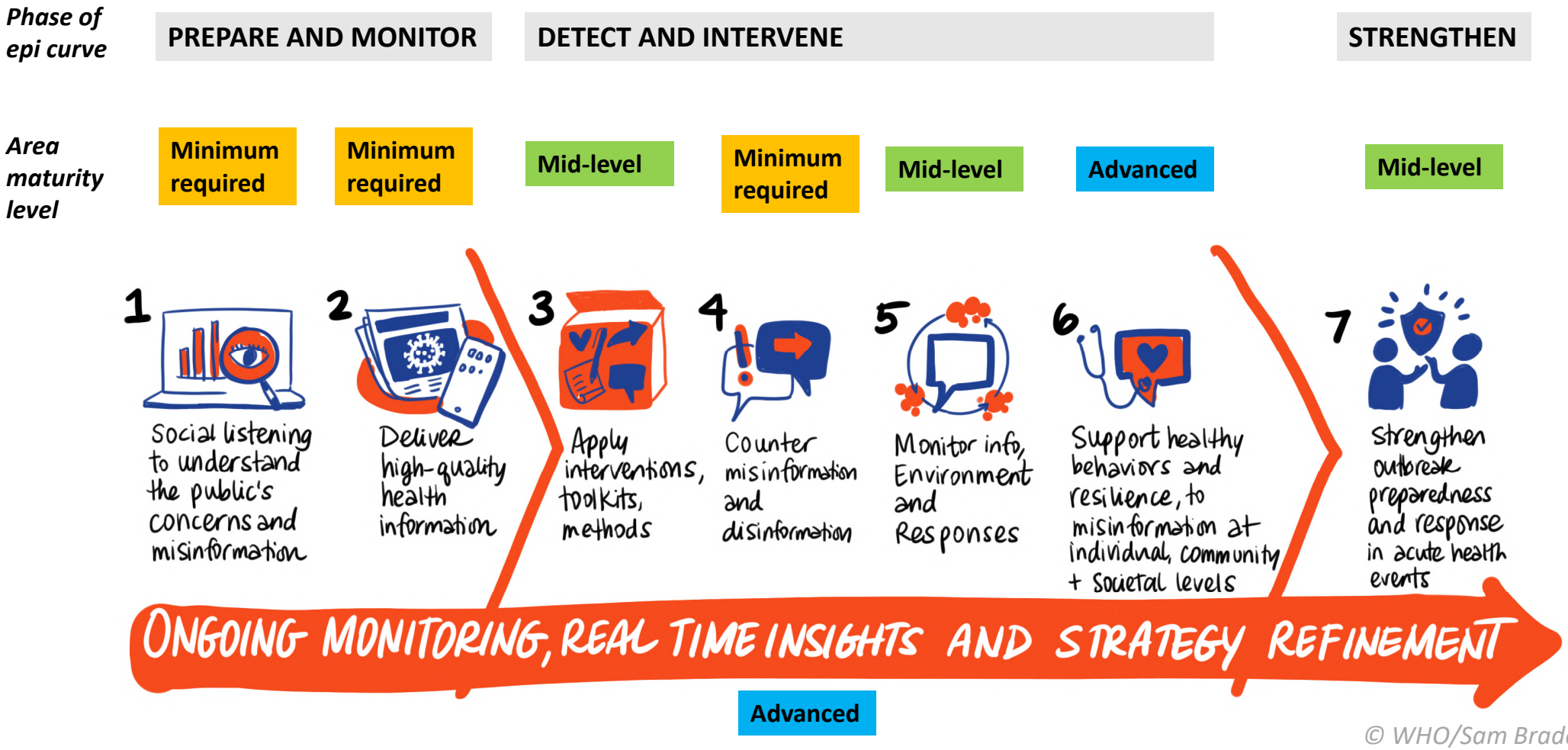
Key assumptions and operational environment

- Populations that are **vulnerable and at risk and may be uniquely affected by the infodemic**, and a way that is hard to track or parse.
- **Extra efforts** need to be made to understand the needs of populations that have been marginalized, are **vulnerable, offline or unnetworked.** These are usually not easily accessible to listen to or to reach.
- Funding - **not likely that there is a dedicated funding stream** or budget line with management of misinformation especially for emergency or preparedness planning or emergency operations in public health.
- Maturity of response - recognize that different countries and **different contexts will need different types of support.**
- Expertise – skillsets exist but in some contexts you don't have someone whose full time job is to monitor or responding health misinformation or has the budgetary mandate to implement infodemic management activities

Infodemic management is a process, not an end state

- To do it well and effectively, approaches for gaining trust and credibility, for listening to the needs of individuals and communities and for responding to their concerns **needs to be done with utmost sensitivity and empathy**.
- When done properly, infodemic management can **maintain or restore confidence in health systems** or authorities that they can deliver on the promise of equitable access to quality health services.
- Infodemic management **should be done all the time and not just when there is an outbreak**, just like epidemiological surveillance is done consistently with a more proactive set of actions and tools used in acute health events.
- **If infodemic management is treated as issues management or designed to mitigate and protect reputational risk of health authorities, it can backfire.**
    - For example, policies that make it more difficult for individuals to enact their right to information and to health and affect freedom of expression or magnify existing gaps in health system delivery

Consider maturity of the infodemic management activities



Infodemic management requires not just understanding of how information flows, but also understanding of cognition and behavior, to be able to:

- Address harmful effects of infodemics and health misinformation
- Reduce burden of infodemic and mortality from unhealthy and harmful health behaviors
- Develop and maintain trust in health authorities, health service delivery, and public health response
- Reduce susceptibility of individuals to health misinformation and lead to healthy behavior change
- Reduce confusion, risk-taking and harmful attitudes and behaviors

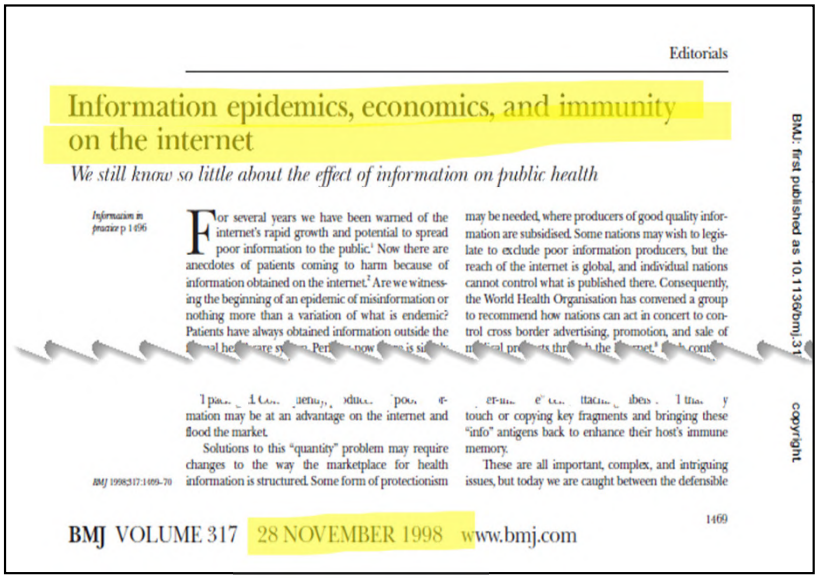
Infodemic management is an evolving area of research and practice

But what we do know:

- Infodemic management has **specialized language, tools**, and is a nascent field of research
- Build on experience of **systems strengthening in public health** – build on existing systems
- We can accelerate evidence generation through **implementation and operational research**
- Previous experience shows **multidisciplinary approaches are needed** – infodemic management requires extreme branching out of collaborations
- Commitment to **quick and practical interventions** – don't let the perfect be the enemy of the good
- While responding, we must strive to in parallel build standards, taxonomies, reference materials, toolkits - **work towards a common approach, common vocabulary and a common evaluation frame**
- **Documenting what we do will be key** in future guidance generation – share with your colleagues, and commit to paper and analysis writing with collaborators
- Policy landscape is nascent, therefore **policy actions must be carefully evaluated for unintended harm**

Information overflows and misinformation

Web and social media in 1998:



Editorials

Information epidemics, economics, and immunity on the internet

We still know so little about the effect of information on public health

Information in practice p 1496

For several years we have been warned of the internet's rapid growth and potential to spread poor information to the public.[1] Now there are anecdotes of patients coming to harm because of information obtained on the internet.[2] Are we witnessing the beginning of an epidemic of misinformation or nothing more than a variation of what is endemic? Patients have always obtained information outside the [illegible] health care system. Perhaps now [illegible] is simply

may be needed, where producers of good quality information are subsidised. Some nations may wish to legislate to exclude poor information producers, but the reach of the internet is global, and individual nations cannot control what is published there. Consequently, the World Health Organisation has convened a group to recommend how nations can act in concert to control cross border advertising, promotion, and sale of medical products through the Internet.[3] Such control

[illegible] mation may be at an advantage on the internet and flood the market.

Solutions to this "quantity" problem may require changes to the way the marketplace for health information is structured. Some form of protectionism

[illegible] touch or copying key fragments and bringing these "info" antigens back to enhance their host's immune memory.

These are all important, complex, and intriguing issues, but today we are caught between the defensible

BMJ 1998;317:1469–70

1469

BMJ VOLUME 317 28 NOVEMBER 1998 www.bmj.com

BMJ: first published as 10.1136/bmj.31

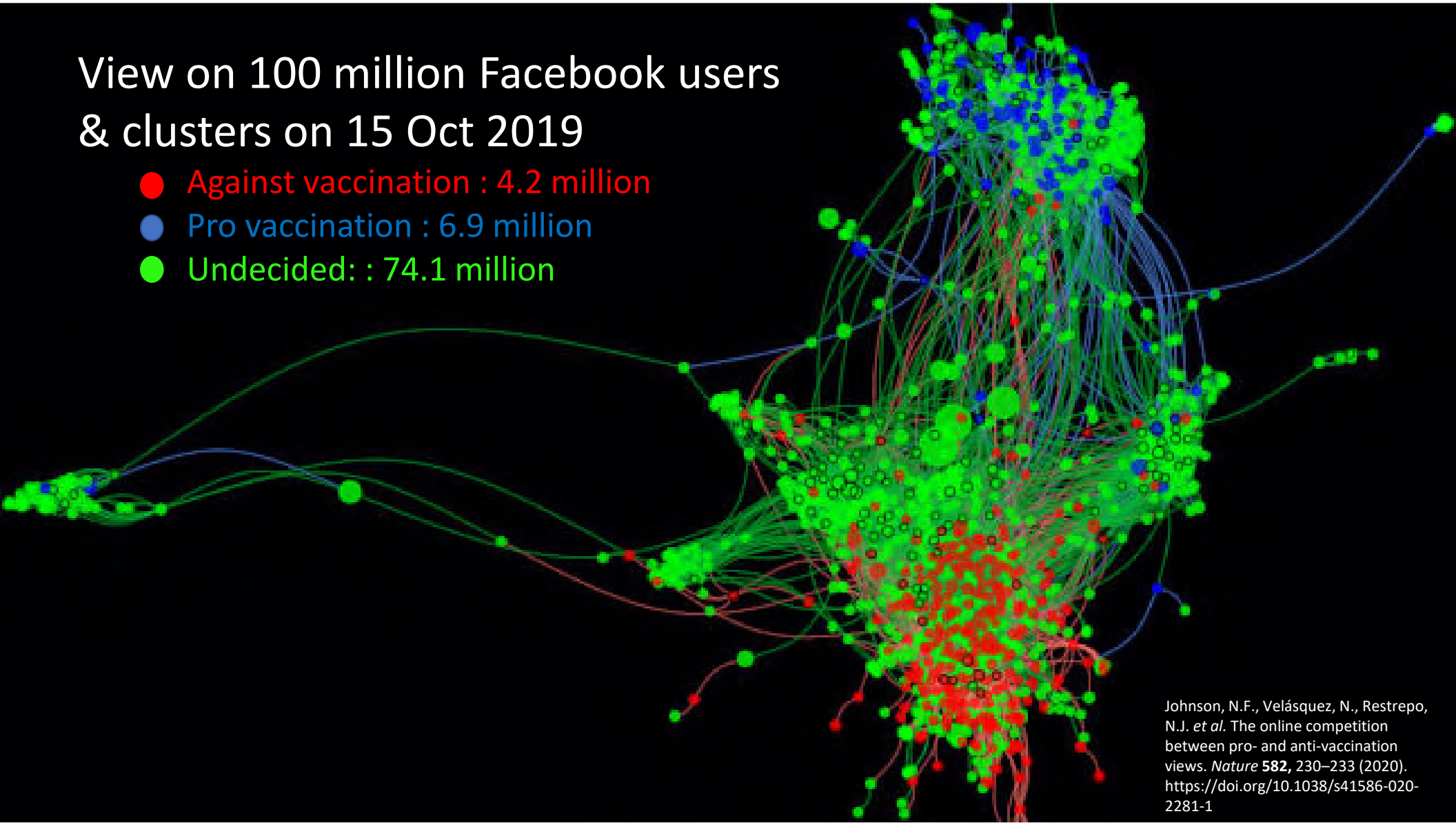
copyright.

- Bulletin Board System (BBS), bolt.com, sixdegrees.com, and OpenDiary social media networks
- AOL search and messenger
- ICQ messenger
- Google incorporates
- Netscape Communicator 4.5

The infodemic during the COVID-19 pandemic in 2020:

- First pandemic in the digitized society of 21st century
- Changing risk assessments and messages as more is known about the virus and the disease
- Unprecedented partnerships across whole of society
- The knowledge-deficit-filling model of the past is insufficient to framing an effective risk communication response
- A more tailored approach targeted towards changing behaviors is needed

Participatory/ Social Web (Web 2.0) → **Sensory Emotive Web (Web 5.0)**


View on 100 million Facebook users
& clusters on 15 Oct 2019
Against vaccination : 4.2 million
Pro vaccination : 6.9 million
Undecided: : 74.1 million
Johnson, N.F., Velásquez, N., Restrepo, N.J. et al. The online competition between pro- and anti-vaccination views. Nature 582, 230–233 (2020). https://doi.org/10.1038/s41586-020-2281-1

Infodemic Management

The science – the practice – the tools, methods and interventions

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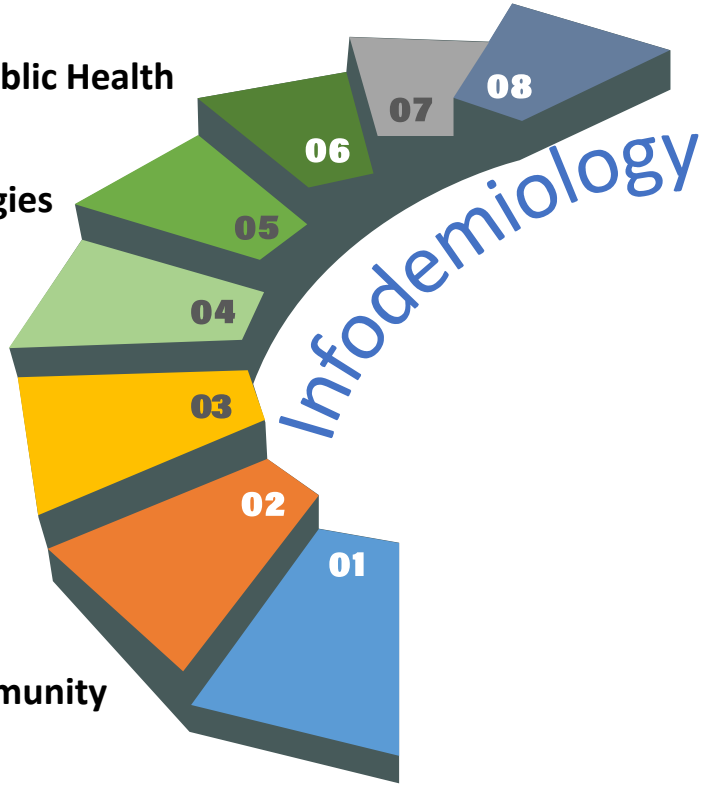

Infodemic Management

The science – the practice – the tools, methods and interventions

Information

- Information environment
- Communication channels (digital and physical)
- Information voids

Infodemic mgt interventions

- Reaching high-risk and vulnerable populations (online, offline)
- How to counter narratives, communities
- Behavioral nudges; Marketing/UX
- Building resilience and self-efficacy
- Implementation research and experimental designs
- Skills needed by health authorities
- Public vs private interests in intervention design

Info overflow, narratives, misinformation

- Risk factors for harmful misinformation
- Rumor lifecycle; Tipping point for action
- Credibility and trust
- Role of media, social media platforms, legal systems, scientific publishing
- Digital transformation
- Literacy

Surveillance and metrics

- Misinfo investigation; infodemic response M&E indicators
- Exposure to misinfo and online/offline behaviour
- Common taxonomy for analysis of info/narratives
- Existing and new data sources; triangulation
- Linguistic and language-independent analysis
- Involvement of community in collection and analysis

Infodemic Management – example tools and approaches

The science – the practice – the tools, methods and interventions

Applied Math & Data Science

- linguistic and language-agnostic network analysis
- complexity science in definition of R0;
- detection of bots and deepfakes;
- linguistic sentiment analysis;
- automated detection of misinformation

Digital Health and Technology Applications

- impact and ethics of automated correction and algorithms for content promotion in digital media;
- private vs public good in infodemic management by the private sector;
- Microcontent applications in health care
- broadcast SMS messages through telecom operators;
- role of health care microcontent services and systems

TOOLS AND APPROACHES

Ethics & Governance

- ethics of automated correction and algorithms for content promotion;
- private vs public good in infodemic management by the private sector;
- freedom of expression vs legislative measures against harmful content

Social & Behavioral Science

- Using validated metrics for understanding knowledge, attitudes, practices and self-efficacy related to misinfo;
- Constructing narratives and debunking misinfo/ disinfo

Marketing, UX & Design

- A/B message testing on social media;
- participatory design practices;
- conversion and the exposure-to-intent action gap

Infodemiology – examples of interventions and approaches