

Health information

Strengths and Weaknesses Analysis and Recommendations for a National Health Information and Anti-Disinformation Strategy

Report to the
Ministre de la Santé, des Familles, de l'Autonomie et des
Personnes handicapées

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Mathieu MOLIMARD
Dominique COSTAGLIOLA
Hervé MAISONNEUVE

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Foreword

This report is based on 156 interviews conducted between late August and late November 2025 with 270 individuals from health agencies, associations, health insurance providers, healthcare institutions, journalists, media outlets, mutual insurance companies, national research organisations, political parties, civil society representatives, platforms, healthcare professionals, scientists, government departments, learned societies and universities. These 156 interviews produced an exceptionally dense body of material, representing more than 800 pages of reports. To ensure that participants could speak freely and calmly, we undertook not to quote any of them directly. This body of work was essential in informing our findings and guiding the proposed courses of action. In this context, the report deliberately does not reproduce any individual extracts, but summarises the lessons learned as faithfully as possible.

Most participants describe an increase in health disinformation, fuelled by poor scientific literacy, insufficient critical thinking, digital virality, a loss of scientific benchmarks and the organised dissemination of misleading content. They expressed a need for national coordination, easier access to reliable information, the effective and faster implementation of sanctions against disinformers, and better support for those who speak out to inform the public, in the face of online harassment, threats and targeted attacks.

One idea recurred in all the interviews: only collective and structured action – combining **education, training, information, detection, sanctions and research** – will enable us to respond to disinformation, which undermines trust, endangers citizens' health and contributes to the polarisation of our society.

We would like to thank everyone who gave us their time and ideas during the interviews. We observed a very strong motivation to participate in a coordinated fight against health disinformation. All are aware of the existing risks, most are fighting locally, and we hope that they will recognise themselves in this report.

Our public declarations of interest are available on DPI Health:

(<https://dpi.sante.gouv.fr/dpi-public-webapp/app/home>).

In the interests of equality, the terms used include all persons, regardless of gender.

Summary

Like many other countries around the world, France is experiencing an increase in health disinformation.

Recent health crises, such as the Covid-19 pandemic, as well as the emergence of recurring infectious threats, have had the paradoxical effect of increasing the circulation of false information, scientifically unfounded interpretations and manipulated content.

This disinformation has now become so widespread that it threatens the very existence of healthcare systems as we know them. The corollary of this is the return of diseases that were thought to have been eradicated, an increase in infant mortality and a decline in life expectancy.

Our mission on health information was conducted between August and November 2025, involving 270 people, including members of health agencies, associations, health insurance providers, health establishments, journalists, media outlets, mutual insurance companies, national research organisations, political parties, civil society representatives, platforms, healthcare professionals, scientists, government departments, learned societies and universities.

A shared diagnosis: structural fragility and collective vulnerability.

The population is not sufficiently equipped to resist disinformation. Three weaknesses stand out clearly: insufficient scientific and health education (*literacy*); a real difficulty in judging the reliability of available information sources; and a relationship with information that has been disrupted by digital technology.

Social media is the main source of information for half of 15-30 year old (53%), particularly Instagram, TikTok and YouTube, where content arrives unfiltered, driven by algorithms that favour emotion and quick reactions at the expense of facts and reflection.¹

Faced with this unprecedented phenomenon, teachers, health professionals, scientists, journalists and institutions are powerless. They are not trained to help the public find their way. Scientists, health professionals and institutions communicate little, or with difficulty. Generalist journalists tell us they lack health literacy. Science journalists are rare.

While our scientific system as a whole is robust, public discourse on health issues is too fragmented and too slow to respond to viral trends. It relies on communication formats that no

¹ [https://labo.societenumerique.gouv.fr/fr/articles/dossier-comment-les-jeunes-sinforment-sur-lactualit%C3%A9-enqu%C3%AAtes-sur-leurs-pratiques-informationnelles/#\(The Great War and the Great Depression\):-:text=While%20more%20than%20dedicated%20to%20decrypting%20the%20news](https://labo.societenumerique.gouv.fr/fr/articles/dossier-comment-les-jeunes-sinforment-sur-lactualit%C3%A9-enqu%C3%AAtes-sur-leurs-pratiques-informationnelles/#(The%20Great%20War%20and%20the%20Great%20Depression):-:text=While%20more%20than%20dedicated%20to%20decrypting%20the%20news)

longer correspond to the habits of the population. The proliferation of sources of highly heterogeneous quality pollutes the information space and destroys reference points.

Disinformation affects all areas: vaccination, cancer, nutrition, mental health, women's health, non-conventional care practices (Pratiques de Soins Non Conventionnelles, PSNC) and environmental risks. Those responsible for spreading disinformation about health in France come from a variety of backgrounds. They include influencers, activist groups, misguided healthcare professionals and scientists. They are motivated by economic, ideological or identity-based factors. They know how to exploit the slightest flaw in the discourse of public authorities. Manufacturers, whether they market health products or products that impact health, can also be a source of health disinformation. Public authorities and politicians may take positions that are scientifically unfounded or influenced by lobbyists (alcohol, food, medicines, vaccines, etc.). These positions have a major impact on the credibility of public discourse and public health.

Conversely, the detection of and response to disinformation remain unorganised. They rely on just a few isolated actors, whose goodwill is often the only guarantee of the sustainability of their actions. There is a total asymmetry between those who spread health disinformation and those who speak out to defend the facts. Scientists who defend the facts are harassed, pursued in their private lives and targeted by intimidation lawsuits. Meanwhile, disinformers are rarely punished. The money that health disinformers rake in, to the detriment of the well-being and health of their victims, increases their potential for harm.

Finally, while disinformation is now a real health risk factor, it also undermines trust in institutions and jeopardises social cohesion. It contributes to polarising public debate in favour of extremes and weakens democracy.

Our mission proposes a coherent and operational strategy to improve the quality of health information and combat disinformation. This strategy is based on six pillars: **education, training, information, detection, sanctions** and **research**.

A national strategy based on nine key recommendations

Recommendation 1 – Promote critical thinking², science, health and media literacy (page 15)

From an early age and throughout life, this involves:

- developing critical thinking education,
- developing a shared scientific culture,
- developing a culture of health among citizens,
- strengthen media education applied to health.

Recommendation 2 – Strengthen training² in science, critical thinking, digital literacy and communication (page 20)

This involves:

- strengthen scientific training, critical thinking and digital literacy,
- train health professionals and scientists in communication,
- strengthen the skills of future health professionals,
- modernise continuing education for healthcare professionals,
- strengthen the training of journalists,
- train public officials and elected representatives in disinformation and crisis communication,
- develop new university courses,
- ban the academic labelling of unvalidated non-conventional care practices.

Recommendation 3 – Develop a public information and disinformation prevention plan² in each institution (page 39)

Mobilise all stakeholders – agencies, ministries, universities, national research organisations, healthcare institutions, academies, learned societies, associations and organisations involved in healthcare – by implementing and publishing their own information and disinformation prevention plans.

Recommendation 4 – Develop and deploy the Info-Score Santé (page 29)

Create the Info-Score Santé based on the Nutri-Score model for food, to assess the editorial quality of health information sources (traceability, scientific validation, updating, error management, conflicts of interest, etc.). It will provide the public with a clear benchmark to guide them through a saturated information landscape.

² Education, training and information are defined on page 12

Recommendation 5 – Create a Health Information Observatory (page 30)

The Health Information Observatory should become the public entry point for reliable health information in France. It is coordinated by a Steering Committee supported by a Scientific Council. It has a health information platform accessible via the modernised Santé.fr portal, generative conversational AI, a directory of experts and an infovigilance system (reporting new cases of health disinformation, see below).

Recommendation 6 – Develop an infovigilance system within the Health Information Observatory (page 41)

The purpose of the infovigilance system is to:

- identify: structure a reporting and detection organisation,
- verify: qualify and analyse misleading content,
- inform: organise a gradual, rapid and coordinated response.

Recommendation 7 – Reverse the risk: punish those who spread disinformation and protect scientists (page 45)

- Enforce existing legislation rigorously through administrative, disciplinary and judicial authorities, rather than creating new offences.
- Communicate the sanctions applied to deter others.
- Monitor associations that orchestrate harassment campaigns.
- Strengthen media regulation.
- Protect scientists who provide information.

Recommendation 8 – Make infodemiology³ a research priority through a PEPR (*Programme et Équipement Prioritaire de Recherche*) (page 47)

Gain a better understanding of narratives, algorithmic mechanisms, health behaviours, economic costs and effective communication strategies by making the fight for health information the subject of a *Programme et Equipements Prioritaires de Recherche* (PEPR).

Recommendation 9 – Take action at European level

- Rethink the regulation of platforms, which now appear to be media outlets with a genuine editorial policy and should be treated as such.
- Lobby European authorities to promote the inclusion of infodemiology in research calls for proposals in order to strengthen international collaboration.

³ This is the study of health information and its impact on public health

Introduction

The mission to fight health disinformation, entrusted by the French Minister in charge of Health in August 2025 (Appendix 1), takes place in a context of information crisis, questioning of scientific data and mistrust of institutions. Health disinformation has always accompanied scientific progress and health crises. It touches on what is most intimate and vital to each of us — life, illness, suffering and death. It awakens fundamental and archaic emotions — fear, rebellion and sadness — which alter our ability to discern and make us more vulnerable to simplistic or misleading narratives. This emotional charge is fertile ground for manipulation, whether conscious or opportunistic.

Citizens are increasingly following social networks, influencers, video platforms and rolling news channels, without abandoning more traditional media (press, radio, television). Anyone can publish, comment and instantly reach thousands of people, without filters or verification. Instant reactions, the quest for visibility and algorithmic editorialisation favour content that plays on the most primitive emotions, leaving no room for verification, synthesis and the perspective necessary for reflection. This loss of intermediaries, while reflecting a democratisation of speech, is accompanied by public disorientation. Facts and science are mixed without any perceptible boundary with falsehoods, opinions and beliefs. A minority of actors produce most of the fake news, which is relayed by automated accounts or those who are sincerely misled.

With all these ingredients, the scale of this disinformation, its speed of propagation and its societal impact have changed profoundly in recent years. Waves of fake news about vaccines, miracle treatments for Covid-19 and alleged health scandals have fuelled unprecedented mistrust of scientific institutions, health authorities and professionals themselves. Behind messages that exploit emotions and anger often, lie financial or ideological motives: monetisation of viral content, commercial therapeutic proposals, book sales, the pursuit of political influence, foreign interference, etc. This multifaceted and persistent disinformation undermines prevention, erodes trust and sometimes kills by diverting the most vulnerable away from care or vaccination.

Disinformation spreads rapidly, especially when there is scientific uncertainty and critical thinking is underdeveloped in our societies. This long-standing phenomenon affects many areas, such as the assassination of JFK, the attacks of 11 September 2001, and global warming.⁴ One component of disinformation is post-truth, defined as *"a political and media configuration in which the credibility of a discourse relies less on its adequacy to the facts than*

⁴ Huchon T. Résister aux fake news. Comment faire face aux théories du complot les plus courantes. First Editions 2025, 235 pages

on its correspondence with the beliefs and emotional impulses of a section of public opinion, against a backdrop of widespread mistrust of elites and established institutions".⁵ Globally, disinformation in general has become a major risk for our societies.⁶

Disinformation can lead to the polarisation of societies. This involves real or perceived ideological and cultural divisions within and between communities, leading to a decline in social stability, decision-making deadlocks, economic disruption and increased political polarisation. Mistrust of the political sphere, and even of democracy itself, is one consequence of this.

We have taken the definition of information disorder from a Council of Europe report (Table 1).

Table 1: The three types of information disorder⁷

	Nature of information	Intentionality	Example
Misinformation	False	No	Sharing an inaccurate article without verifying the facts
Disinformation	False	Yes	Coordinated campaign to manipulate public opinion
Malinformation	True and manipulated	Yes	Publication out of context to cause harm (e.g. defamation)

In this report, we will use the term "disinformation", covering both "disinformation" and "misinformation". We propose to use the term "good information" as often as possible, which is a constructive concept that does not focus on disinformation.

In France, numerous reports, books, magazine articles and daily newspapers have been devoted to disinformation in general. Examples include: the book by the president of AFP, which describes in detail all the mechanisms of disinformation,⁸ the report submitted by G Bronner to the President of the Republic in January 2022 on information disorders and disruptions to democratic life,⁹ and the work of the Descartes Foundation, which describes

⁵ Mercier C, Warren JP, Malet R (eds.). Post-vérité : la crédibilité du discours scientifique à l'heure des "faits alternatifs". Presses Universitaires de Rennes 2025, 238 pages

⁶ Elsner M, Atkinson G, Zahidi S. Global risks report 2025. World Economic Forum, Davos. 20th edition, 15 January 2025, 104 pages <https://www.weforum.org/publications/global-risks-report-2025/digest/>

⁷ Wardle C, Derakhshan H. Information Disorder Toward an interdisciplinary framework for research and policymaking. Council of Europe 2017, 109 pages. <https://edoc.coe.int/en/media/7495-information-disorder-toward-an-interdisciplinary-framework-for-research-and-policy-making.html>

⁸ Fries F. L'emprise du faux. Désinformation : le temps du combat, Editions de l'Observatoire, 2021, 208 pages

⁹ Bronner G - edited by – Les lumières à l'ère numérique. Presses Universitaires de France 2022, 232 pages.

itself as a citizen-led, non-partisan, independent and European initiative dedicated to issues related to information and disinformation.¹⁰

In health, disinformation is a concept that goes far beyond healthcare. Climate, agri-food products and the environment all have an impact on health. The hypothesis of an increase in health disinformation in most countries, including France, forces us to consider strategies to combat it. To do so, we need to analyse the scale of the phenomenon, its causes and how it is perceived by stakeholders in our country. Our report, which focuses on France, should be followed up by a broader reflection at European level.

¹⁰ <https://www.fondationdescartes.org/>

Chapter 1: Science, health and media education

Building collective resilience to disinformation

In this chapter on education, we have considered education that aims to build general, sustainable and cross-disciplinary skills in individuals from an early age. This takes place over time, in different environments: school, extracurricular activities, family, media and society. Its aim is to train citizens to evaluate information and make informed choices by developing basic skills: critical thinking, discernment, understanding of risk, scientific culture and health literacy, etc.

In the training chapter, we considered the technical, practical and professional skills required for specific target audiences. This refers to training provided to prepare individuals for a profession and all types of training in professional environments.

The information chapter describes the sources used for research in response to a question and the roles of new modes of communication, particularly digital ones.

There are commonalities between these three chapters, and we have tried to avoid repetition.

The common finding is the need to implement a continuous programme of education and training in critical thinking and digital literacy in science and health, covering all ages.

Observation

Our interviews reveal a systemic vulnerability in education. A lack of critical thinking, poor understanding of science and a loss of media reference points are mutually reinforcing factors. Critical thinking is the ability to examine information, statements or situations in a rigorous, methodical and open-minded manner in order to assess their reliability, as opposed to suspicion, which rejects everything out of mistrust.

1. Inadequate education in critical thinking

All the stakeholders interviewed, whether scientists, teachers, journalists or institutional leaders, highlight a lack of critical thinking among the population. This weakness is the main factor contributing to vulnerability to health disinformation.

It manifests itself in:

- difficulty in distinguishing between fact-based information and opinion or belief,
- a lack of understanding of levels of evidence and scientific methods,
- emotional adherence to simple, polarised narratives that exploit fear, anger or mistrust of institutions.

Testimonies converge on the fact that logic, source verification and the ability to question are not sufficiently taught or implemented. Several interviewees mention an illusion of competence linked to immediate access to online information: **knowing how to search information is not the same as knowing how to evaluate**. The lack of critical thinking education leaves room for beliefs and confirmation bias.

2. Lack of knowledge about science and health

The interviews highlight a low level of scientific and health literacy among both the general public and certain information relays. This deficit is based on several observations:

- a lack of general scientific culture, often limited to memorising facts without a real understanding of the methods, reasoning and mechanisms used to establish their validity,
- a misunderstanding of how science actually works, perceived as a set of fixed certainties, whereas uncertainty is an integral part of the scientific process,
- a loss of reference points in the face of the growing complexity of medical knowledge.

Changes in recommendations or revisions of positions (for example during the COVID-19 pandemic) are seen as contradictions, or even manipulation, rather than as a normal part of the scientific process. These misunderstandings fuel a lasting sense of mistrust towards research, health authorities and the media.

Several respondents also mention a growing gap between healthcare professionals and patients in terms of literacy: the most vulnerable patients are the most exposed to alternative narratives, which they find more accessible or more human than institutional medical discourse.

3. Ambivalent relationship with information and the media

Interviews with journalists and editorial staff show that the public's relationship with information has been profoundly altered. The proliferation of channels, the bypassing of intermediaries and the logic of virality have transformed the way individuals obtain information, often to the detriment of reliability.

Several phenomena are recurrent:

- searching for content that conforms to one's beliefs,
- the importance of emotions and presentation in prioritising attention,

- a crisis of confidence in traditional media, accused in turn of bias, incompetence or collusion.

Professionals themselves acknowledge a lack of scientific training and difficulty in communicating with the research community. Media coverage of health issues continues to be marked by a desire for visibility and a temptation to sensationalise. There are too few science journalists, they are not consulted enough, health sections are often under-resourced, and fact-checking comes too late, once viral content has already been disseminated.

Recommendation

The interviews converge on the establishment and evaluation of a course of education in critical thinking, science, health, and digital literacy, beginning at an early age and continuing throughout life. This programme would include an introduction to the scientific method and its application in the field of health, understanding cognitive biases, distinguishing between facts and opinions, knowledge and beliefs, verifying information, and analysing digital content.

Promote critical thinking, science, health, and media literacy

From an early age and throughout life, this involves:

1. Developing critical thinking education

- Developing a cross-curricular approach in school and extracurricular activities.
- Teaching the distinction between facts and opinions, knowledge and beliefs at an early age, based on concrete situations from everyday life and current health issues.
- Training pupils to verify sources, analyse images and videos, and understand digital virality and its challenges.
- Promote active educational projects (podcasts, surveys, mini-fact-checking workshops) to embed critical thinking in practice and cooperation.

2. Develop a shared scientific culture

- Explicitly integrate the scientific method, the logic of evidence, and the concept of uncertainty into teaching.
- Link health issues to everyday science (risk, causality, correlation, experimentation) to show the continuity between academic knowledge and lived experience.
- Encourage interdisciplinary projects combining science, health and digital technology, promoting debate and case studies.
- Use simulation and experimentation tools to make the scientific process, its trial and error and revisions tangible.

3. Developing a culture of health among citizens

- Make public decision-making processes in health more transparent, particularly in times of crisis, by explaining the role of expertise, uncertainties and trade-offs.

- Establish interministerial coordination between the Ministry of Education, Ministry of Health, Ministry of Higher Education, Ministry of Agriculture, Ministry of the Environment, Ministry of Culture, etc. to jointly develop and steer the health education strategy.
 - Create a national repository for resources and educational engineering, responsible for producing, certifying and disseminating reliable health content tailored to different audiences.
 - Identify successful local initiatives and ensure their visibility via a single portal that is clearly identified by the general public, teachers, health professionals and the media.
 - Support local public health education initiatives, particularly in socially, economically or medically vulnerable areas.
 - Involve teachers, patient associations, scientific institutions, healthcare professionals and local media in these efforts.
4. Strengthen media education applied to health
- Incorporate a specific "health" component into media and information literacy programmes, from primary school to higher education.
 - Design and distribute common educational tools on health (kits, videos, interactive capsules, serious games) for teachers, educators and mediators.
 - Develop workshops for critical analysis of media coverage of health issues, including the study of concrete cases, controversies and viral campaigns.
 - Raise awareness of the effects of algorithms, personalised recommendations and information bubbles on the perception of health risks and knowledge.

Chapter 2: Training

Observation

The fight against health disinformation reveals structural shortcomings in the training of key players: health professionals, scientists, teachers, journalists and public officials. These shortcomings contribute to weakening the collective ability to recognise, analyse and counter misleading content, the circulation of which has intensified with social media.

1. A lack of scientific and methodological culture and critical thinking

A recurring observation concerns the lack of scientific, methodological and statistical culture and training in critical thinking in the training of trainers, including teachers and certain categories of health professionals. This weakness makes it difficult to transmit a critical culture that is essential for understanding contemporary health issues and distinguishing between facts, opinions and misleading narratives.

2. Insufficient training of healthcare professionals in communication

Despite their central role in disseminating reliable information to patients, healthcare professionals are still inadequately trained in scientific communication, popularisation, controversy management and understanding the mechanisms of disinformation. Some are at a loss when faced with patients' questions, while others may relay inaccurate or uncontextualised information, sometimes without realising it. The gradual integration of training for certain healthcare professions into universities provides an opportunity to introduce new educational content.

3. Heterogeneous and often inadequate training for health journalists

Most generalist journalists have received no training in science or health.

The training of health journalists also appears to be heterogeneous. Their expertise is often based on experience, mentoring or self-training. A few specialised courses exist, but they remain marginal and cover only a minority of professionals. In a media landscape where health topics are omnipresent, sometimes complex and often polarised, this situation creates significant vulnerability.

4. Insufficient training on disinformation

Another major finding is the still very limited development of cross-disciplinary training dedicated to disinformation and critical analysis. Although scientific mediation courses do

exist, their volume remains insufficient given the scale of the needs. The skills needed to verify information, understand recommendation algorithms and the drivers of virality, and deconstruct manipulative narratives are rarely taught and fall within the field of infodemiology. This is an emerging scientific discipline that is not well known. Infodemiology has been developed since the 2000s, with the advent of the internet, to study health information and its impact on public health.¹¹ It was promoted by the WHO during the SARS-cov-2 pandemic and featured in an open-access book.¹² The literature on infodemiology is growing; a scientific journal, *JMIR Infodemiology*, was created in 2021 by a reputable Canadian publisher.¹³

Identified needs

All of these findings point to clearly identified training needs.

For healthcare professionals, it seems essential to incorporate specific training in the scientific method and its applications in the field of health, critical analysis, the importance of research, evidence-based communication, debunking false information, managing digital presence and identifying weak signals into initial and continuing education programmes. In this regard, the *service sanitaire* is a relevant tool for exposing students to real-world issues and raising their awareness of the real effects of disinformation on health behaviours.

Teachers, who are the primary vectors of scientific culture for young people, must benefit from a substantial strengthening of their skills in digital literacy, scientific method and critical analysis. Certified training, structured around cognitive biases, logical reasoning and source verification, is necessary to prevent current gaps from being perpetuated from one generation to the next.

Journalists must also improve their skills. The increasing complexity of biomedical research requires a better mastery of critical reading of articles, clinical trial methodology, statistical analysis and the criteria for assessing the robustness of evidence. Added to this is the need to acquire expertise in digital investigation: understanding algorithms, the dynamics of information flow, recognising attempts of narrative manipulation, and the judicious use of AI for document analysis and monitoring.

There are also needs in the field of scientific mediation, which must adapt to the growing prevalence of audio and video formats. Professionals must be trained to produce reliable, attractive content that is tailored to the platforms used by young people, using contemporary narrative codes without sacrificing scientific rigour.

¹¹ Eysenbach G. Infodemiology: The epidemiology of (mis)information. *American Journal of Medicine* 2002;113:763-765.

¹² Purnat TD, Nguyen T, Briand S, editors. *Managing infodemics in the 21st century. Addressing new public health challenges in the information ecosystems.* Springer (ebook) 2023, 154 pages. <https://link.springer.com/book/10.1007/978-3-031-27789-4>

¹³ <https://link.springer.com/book/10.1007/978-3-031-27789-4>

Finally, a major effort must be made in the area of continuing professional development so that training organisations can guarantee the quality of teaching, the conformity of certifications and the reliability of trainers. The supervision of these organisations, which is sometimes inadequate, is a matter of credibility and public safety.

Points of vigilance

It is essential to preserve academic freedom and ensure that training courses are not perceived as ideological instruments. Scientific rigour, transparency and independence of content must be guaranteed.

The impact of training courses must be regularly evaluated to ensure that they produce the expected skills, which are useful in the daily practice of professionals and citizens alike.

Recommendation

Strengthen training in science, critical thinking, digital literacy and communication

1. Strengthen scientific training, critical thinking and digital literacy

- Introduce or develop teaching on the scientific method, the logic of evidence, the importance of research, critical thinking, digital literacy and source analysis in all higher education curricula.
- Re-establish the link between research, clinical practice and health knowledge by promoting the scientific approach as the basis for medical decision-making and communication with patients for all health professionals.
- Integrate modules on understanding algorithms, viral dynamics, online manipulation and cognitive biases into all higher education curricula.
- Add training in infodemiology to doctoral studies by inserting the following into Article 3 of the Decree of 25 May 2016 establishing the national framework for training and the procedures leading to the award of the national doctoral degree: "*Ensure that each doctoral student receives training in research ethics, scientific integrity,*" "*and infodemiology (or the manipulation of accurate information to combat disinformation in health).*"¹⁴

2. Train healthcare professionals and scientists in communication

- Raise awareness and ensure compliance with the communication charters of the various institutions, in particular with regard to communication in their field of expertise.
- Identify professionals who are likely to communicate in the media.
- Develop training courses dedicated to scientific communication and crisis communication, tailored to public health issues and digital environments.
- Institutionally recognise and value media engagements.

3. Strengthen the skills of future healthcare professionals

Introduce a compulsory "infodemiology" module in healthcare professional training courses covering:

- critical analysis of sources and scientific literature,
- critical analysis of the promotion of health products and products that impact health,
- mechanisms for spreading false information,

¹⁴ <https://www.legifrance.gouv.fr/loda/id/JORFTEXT000032587086>

- appropriate response strategies,
- communication in sensitive or crisis situations.

This module should enable future healthcare professionals to engage in dialogue with patients, anticipate misleading narratives and respond to questions in a reliable and pedagogical manner.

Teachers of medical ethics and clinical research should be encouraged to include training on infodemiology, accurate health information and fighting health disinformation in their teaching. A paragraph to this effect could be added to the charter of the Faculty of Medicine/Health of the Conference of Deans of Medical Faculties.¹⁵

4. Modernise continuing education for healthcare professionals

- Simplify and revitalise the continuing education system.
- Open up continuing education to universities, learned societies and recognised stakeholders to ensure robust, independent content that is responsive to health emergencies.
- Ensure responsiveness to public health needs and emergencies.

5. Strengthen the training of journalists

- Include in the initial training of journalists a minimum foundation on:
 - the specificities of health information and the consequences of disinformation in this field,
 - the scientific method, the principles of statistics and critical reading of articles,
 - verifying experts' conflicts of interest and ensuring that they express themselves within their area of expertise.
- Provide training in digital tools and online information culture: understanding algorithms, viral dynamics, persuasion techniques, and captivating formats.
- Developing rigorous popularisation skills for journalists specialising in health/science, enabling them to explain the uncertainties, controversies and limitations of studies.
- Encourage joint journalist-scientist training: internships in laboratories or hospitals, joint workshops, seminars on scientific controversies.
- Ensure ongoing training to keep pace with rapid developments in knowledge, digital technologies, generative artificial intelligence (AI) and contemporary disinformation

¹⁵ <https://conferencedesdoyensdemecine.org/wp-content/uploads/2023/06/Charte-doyens-medecine-2023.pdf>

strategies. This training can be provided in partnership with institutions such as Santé publique France, ANRS, INSERM, CNRS, universities and learned societies.

6. Train public officials and elected representatives in disinformation and crisis communication.

Develop training tailored to teams from regional health agencies, prefectures, healthcare establishments, local authorities and elected officials, covering:

- the dynamics of disinformation,
- analysis of information manipulation mechanisms,
- crisis communication,
- regional coordination of responses.

7. Develop new university training programmes

Create or strengthen training programmes (university degrees, master's degrees, certificates) focused on:

- scientific integrity and fraud prevention,
- disinformation, infodemiology and agnotology (culture-induced ignorance),
- scientific mediation,
- science journalism,
- critical analysis of data and controversies.

These programmes must respond to growing professional needs and structure new skills that are essential to contemporary challenges.

8. Ban academic accreditation of unvalidated non-conventional care practices

- Higher education institutions must not grant academic legitimacy (training, degrees, seminars, etc.) to non-conventional care practices¹⁶, which would thus obtain a misleading label in the eyes of the public.
- All training content must be based on established evidence, rigorous evaluation and explicit quality control.
- Audit existing training programmes to verify compliance with these conditions.

¹⁶ See page 40 and Conseil national de l'Ordre des médecins. Pratiques de soins non conventionnelles et leurs dérives. 2023 <https://www.conseil-national.medecin.fr/publications/communiqués-presse/pratiques-soins-conventionnelles>

Chapter 3: Information

Good health information covers the production, dissemination and archiving of scientific knowledge.

Observation

1. Scientific production under pressure

1.1. A fragile balance between rigour and productivity

Scientific information in health is produced by researchers. They are exposed to significant tensions between, on the one hand, the need for methodological rigour, quality and integrity and, on the other hand, pressures related to academic careers, scientific productivity and funding requirements. This duality creates an environment where scientific value is sometimes confused with the quantity of publications or visibility, to the detriment of methodological robustness and transparency of results.

Although France has a high-level academic and hospital network, stakeholders highlight the fragility of the evaluation system and the increasing risks associated with the dissemination of poorly evaluated or unevaluated work published in journals that lack rigorous evaluation standards or are even predatory. The *SIGAPS* system, by financially rewarding publications for the funding of healthcare institutions and the promotion of university hospital staff, encourages quantitative inflation and publication in low-quality profit-driven journals.

1.2. Confused benchmarks of reliability

Traditional reliability benchmarks (peer-reviewed journals, academic editorial boards, learned societies) are blurred by the proliferation of media and the speed of information flows. Open science is a valuable contribution to the dissemination of knowledge, but when misunderstood, it can sometimes disseminate poorly evaluated or unevaluated work (e.g. preprints). The boundary between scientific publication, science communication and opinion is blurring, particularly on social media.

The proliferation of low-quality journals that exploit the reputation of researchers or publish without proper peer review jeopardises the reliability of scientific output. A researcher within the OECD published an average of 0.9 articles per year in 2005 and 1.6 articles per year in

2021.^{17,18} Generative AI makes it possible to produce well-written, convincing articles that are difficult for editors to identify. This has contributed to an inflation of articles in recent years. In its 2025 evaluation of the Hospital–University Institutes (IHU), the High Council for Evaluation of Research and Higher Education (Hcéres) compared overall scientific output with that excluding low-quality journal publishers. It noted an increase in the volume of publications by these publishers, illustrating the widespread use of their journals. The Conference of Deans of Medical and Health Faculties, in collaboration with the National Council of Universities (CNU) Health, took the opposite approach by establishing a positive list of 3,500 recommended scientific journals.¹⁹ This positive list approach illustrates the need for a national reference framework for scientific integrity and validation. The list is updated four times a year. A journal can only be added to the list upon request (using the form available on the website), provided that it has been in existence for more than three years and has been approved by a sub-section of the CNU. A group of experts analyses the requests before submitting them to the CNU. These are recommended journals for submitting publications, but some high-quality journals may not yet be included in this evolving list.

1.3. Uneven application of scientific integrity

Since the signing of the French charter of ethics for research professions in 2015, scientific integrity has been established, while ethics and/or professional conduct committees already existed. The Research Programming Law of 24 December 2020 enshrines scientific integrity in the Research Code and the Education Code. This applies to public institutions contributing to the public research service and the public-interest foundations whose main activity is public research. A decree of 3 December 2021 defines the missions of Research Integrity Officers (RIO).

These mechanisms remain very heterogeneous from one institution to another. Training and Research Units (UFR) and health institutions are not bound by this law and appoint RIO on a voluntary basis. Some institutions have structured and well-resourced units with internal procedures, trained investigators and the publication of activity reports. Scientific integrity is often perceived as an administrative constraint rather than a component of scientific quality. Since 20 December 2020, Hcéres has been required to "*promote scientific integrity and ensure that it is taken into account in the evaluations it conducts or whose procedures it validates*".

¹⁷ Scientific publishers are producing more papers than ever. The Economist: 20 November 2024. <https://www.economist.com/science-and-technology/2024/11/20/scientific-publishers-are-producing-more-papers-than-ever>

¹⁸ Hanson MA, Barreiro PG, Crosetto P, Brockington D, The strain on scientific publishing. *Quantitative Science Studies* (2024) 5 (4): 823–843.

¹⁹ <https://conferencedesdoyensdemecine.org/la-conference-des-doyens-de-medecine-et-du-cnu-sante-luttent-contre-les-revues-predatrices/>

Hcéres hosts Ofis (the French Office for Scientific Integrity), which is responsible for summarising data submitted by institutions and foundations involved in public research on the handling of reports of potential breaches of scientific integrity. The obligation to submit this data every two years was established by the Research Programming Law of 24 December 2020. The first Ofis report was published this summer, and it is regrettable that half of French institutions simply did not comply with their legal obligation in this regard.²⁰

2. Poorly coordinated communication of information

Communication is fragmented and there is no shared strategy or coordination between the various institutional players. Public institutions, national and regional agencies, learned societies, healthcare establishments, research organisations and associations each produce their own messages, without any overall coordination. This multiplicity of sources leads to redundancies, contradictions and a lack of clarity in public discourse. The media and platforms exploit this information, sometimes without sufficient critical thinking.

2.1. A changing approach to information seeking

Neither citizens nor healthcare professionals can easily access all available information without searching multiple scattered websites. The public health information service established by Article 88 of the Health System Modernisation Act of 26 January 2016-41 has set up a public information platform, Santé.fr. The purpose of this service is to disseminate information on health and health products, particularly health, medico-social and social services, to the public free of charge and as widely as possible. It aggregates information from various sources, the selection process for which could be clarified. The current limitations of Santé.fr—an obsolete search engine, complex navigation, lack of scientific council, dependence on political power, weak presence on social media and insufficient budgetary resources—require a complete overhaul. The resources currently available do not allow for development commensurate with the challenges, even though the site should play a central role in providing the accurate information that is essential to fight disinformation in the health sector.

The way in which citizens, journalists and professionals search for information is changing rapidly. Traditional search engines (Google, Bing, Qwant, etc.) are gradually being abandoned in favour of generative AI (ChatGPT, Mistral, Gemini, Perplexity, etc.). These tools offer concise answers, but are based on knowledge bases whose scope is not explicit, which can be manipulated and can produce errors ("hallucinations"). To prevent these AI systems from

²⁰ <https://www.ofis-france.fr/wp-content/uploads/2025/06/Ofis-Synthese-bisannuelle-2022-2023-traitement-manquements-integrite-scientifique.pdf>

relying on inaccurate information, institutions must make their reliable data accessible in a secure and traceable manner so that these tools—when consulted—can rely on validated content.

2.2. Outdated communication strategies

Communication campaigns remain top-down and ill-suited to contemporary digital codes in a context of growing scepticism about public discourse. Emotional or polarised narratives dominate digital spaces, while factual and educational content struggles to emerge. Institutional communication remains poorly coordinated and insufficiently present on the channels frequented by young or vulnerable audiences, who are increasingly turning away from traditional media (television, radio, press). A recent survey of 4,500 young people aged 15 to 30, conducted for the Directorate of Youth, Popular Education and Community Life (DJEPVA) and the National Institute for Youth and Popular Education (INJEP), indicates that social media is the main source of information for around half of 15-30 year old (53%).²¹ This development accentuates the gap between traditional communication codes and the expectations of young audiences.

2.3. Slowness incompatible with viral disinformation

Internal procedures for validating information issued by public institutions, which are essential to the reliability of the message, remain too slow to cope with the speed at which false information spreads. Due to a lack of coordination, only a few isolated individuals, whistleblowers, fact-checkers, specialist journalists or a handful of learned societies find themselves on the front line, often having to react urgently with highly variable resources, strategies and levels of rigour. The absence of a responsive and structured national infovigilance unit deprives the public response of a concerted and rapid capacity to deal with emerging rumours.

3. The scientific voice: between freedom, responsibility and fragility

Those who disseminate science expose themselves, while those who spread disinformation thrive. The voice of scientists plays a central role in the circulation of health information, but it is now being called into question. Scientists themselves, despite being key players in the transmission of knowledge, are often reluctant to speak out in the public arena. Fear of harassment, lack of communication training and lack of institutional recognition fuel this

²¹ <https://labo.societenumerique.gouv.fr/fr/articles/dossier-comment-les-jeunes-sinforment-sur-lactualit%C3%A9-engu%C3%A9es-sur-leurs-pratiques-informatiques/#:~:text=While%20more%20than,dedicated%20to%20decrypting%20the%20news>

reluctance. Many experts have left social media and given up speaking out after being subjected to targeted attacks or intimidation lawsuits for defending science and facts. There appears to be a real asymmetry of risk between scientists who try to communicate facts and science and those who want to silence them when this does not correspond to their beliefs or interests. This reluctance on the part of scientists to speak out encourages the proliferation of inaccurate, misleading or even false discourse.

The quality of public debate on health issues depends on how scientists express themselves in the media. Their words are eagerly awaited, contested and scrutinised in a media environment where controversy can be exploited. Scientists who take advantage of their status and notoriety to produce and disseminate false information have an extremely damaging impact on the credibility of science and public health. More often than not, they do so outside their area of expertise.

Academic freedom – the subject of a report by France Université in October 2025 – guarantees university lecturers and researchers freedom of expression in their field of expertise.²² It is a pillar of scientific democracy and a prerequisite for the advancement of knowledge. This freedom comes with an ethical responsibility: to express positions based on evidence, to explain uncertainties, and to clearly distinguish personal opinion from scientific knowledge. Recent crises, notably Covid-19, have highlighted the tensions between freedom of expression and the duty of rigour. The immediate media coverage of controversies has blurred the line between scientific debate and public communication, between hypothesis and established truth. Some scientists have seen their words exploited, while others have been harassed for defending the scientific method.

In response to these abuses, several institutions have adopted a charter governing the public statements of their researchers. These charters reiterate that academic freedom should not be restricted, but that it comes with a responsibility: to contribute to an informed debate that respects facts, plurality of approaches and research values. Above all, they specify that researchers must refrain from presenting themselves as experts and promoting their status in fields outside their area of expertise, and must ensure that they disclose any conflicts of interest. They may only use the name of their affiliated institution if they remain within their field of expertise and the institution does not object. This should be understood not as a limitation on freedom of expression, but as rules of trust between the scientific community, the media and the public.

²² Balme S. Défendre et promouvoir la liberté académique. Un enjeu mondial, une urgence pour la France et l'Europe. France Universités, 15 October 2025 <https://franceuniversites.fr/actualite/rapport-defendre-la-liberte-academique/>

4. The decisive role of science journalists

Journalists trained in science are an indispensable link between research and the general public. Their role as mediators enables them to translate complex knowledge into accessible language, put results into perspective and distinguish established facts from hypotheses, opinions or views. However, their place in the media landscape has weakened. Their role within newsrooms as guarantors of rigorous scientific analysis can be called into question at any moment by the commercial need for buzz and audience ratings. This structural fragility increases dependence on institutional and industrial press releases or polarised narratives on social media.

The weakness of the scientific journalism network is a major vulnerability in the health information system: it encourages the rapid spread of inaccurate or simplified information and makes it more difficult to strike a balance between scientific uncertainty, public debate and political decision-making.

Recommendations

1. Develop and deploy the Info-Score Santé

The **Info-Score Santé** is a tool for assessing the quality of health information sources (see project in Annex 5). The **Info-Score Santé** is not a censorship tool: it does not prohibit anything, does not restrict expression, does not entail any sanctions, and its display is voluntary. It is an information system based on public, transparent and reproducible criteria, enabling the editorial quality of health sources to be assessed (traceability, scientific validation, updating, error management, conflicts of interest, etc.).

Like the Nutri-Score, it provides the public with a clear benchmark for navigating the search for health information in a saturated information landscape, without passing judgement on opinions or content. It aims to enlighten, not restrict: everyone remains free to publish or consult whatever they wish, but with an objective indicator of the reliability of sources. By increasing transparency and public understanding, the Health Info-Score contributes to high-quality information and better-informed freedom of expression.

1.1. Objectives

- Provide the public with a clear benchmark for the quality of sources, using a grading system (A: excellent → E: poor).
- Encourage stakeholders to improve editorial rigour.
- Promote the identification of reliable sources.
- Improve the clarity of the French information landscape.
- Identify sources likely to fuel infodemics.

1.2. Criteria assessed according to an operational grid

- Transparency of conflicts of interest.
- Scientific validation.
- Traceability and quality of sources.
- Updating.
- Correction of errors.
- Penalties: health advertising, industrial funding > 20%, significant referencing of primary sources not from journals listed in the list of recommended journals established by the deans of medical or health faculties and the CNU santé (National University Council for Health).

2. Create a health information observatory.

The observatory is set to become the public gateway to reliable health information in France. It is coordinated by a steering committee supported by a scientific advisory board. It has a health information platform accessible via the modernised Santé.fr portal, generative conversational AI, a directory of experts and an infovigilance system (Chapter 5 Detection).

2.1. Scientific advisory board

The scientific advisory board is responsible for integrating and reviewing the list of reliable sources based on the principles of the Info-Score Santé.

Non-exhaustive list of possible sources:

- health agencies (HAS, ANSM, SpF, ANSES, Inca, etc.),
- healthcare institutions, national research organisations, universities,
- learned societies, teachers' colleges, academies,
- recognised user associations,
- specialised fact-checkers,
- international resources where relevant.

The scientific advisory board oversees the directory of volunteer scientific experts with communication skills, proposed by sources recognised as reliable. It takes into account the management of experts' conflicts of interest. It validates a list of keywords characterising each expert's areas of expertise. This directory will facilitate journalists' access to certified, responsive and competent contacts.

The scientific advisory board evaluates the annual activity report of the health information observatory and makes proposals for development.

2.2. Building a modernised consultation portal equipped with conversational AI

- Complete graphic and functional redesign of Santé.fr: more intuitive interface, conversational search engine, simplified content architecture.
- Enhanced accessibility (easy to read and understand, video formats, infographics).

- At the heart of the redesign, Santé.fr must offer a searchable generative conversational AI, based on a controlled corpus, as opposed to generalist commercial AI, capable of providing:
 - quick, personalised, traceable and always sourced responses,
 - differentiated language levels (general public/professional),
 - total transparency of references used,
 - continuous updating,
 - decision support for healthcare professionals within the framework of current regulations.

The portal will offer health education modules and training courses tailored to public health needs, particularly in the context of a crisis.

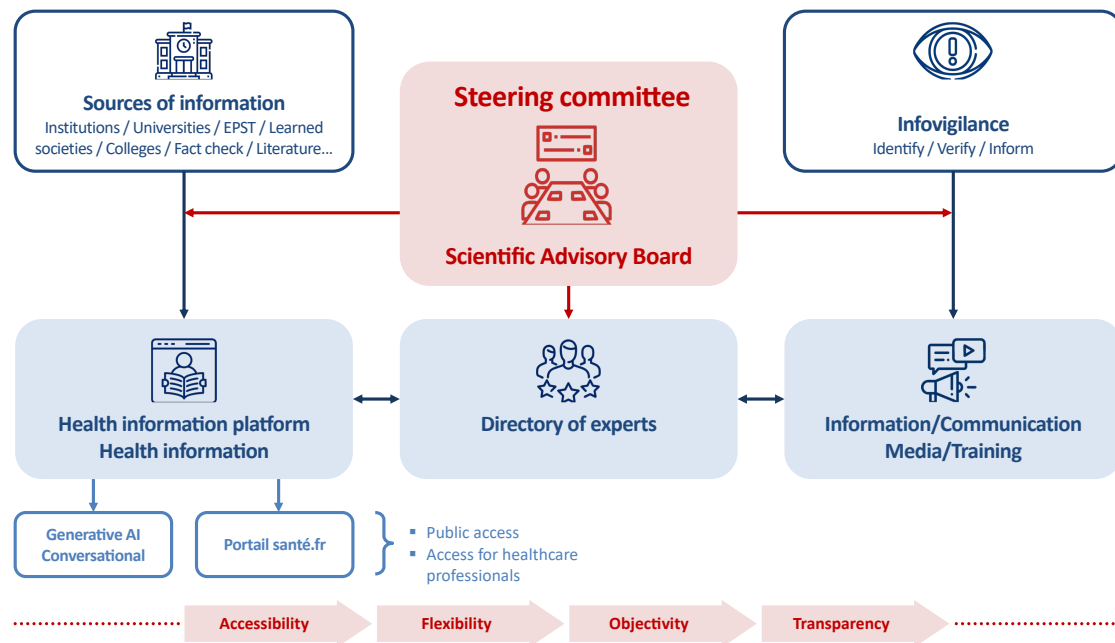
It will archive the history of content.

2.3. Guaranteeing independence, transparency and trust

To ensure the credibility of the observatory:

- it must be supported by an independent institution such as *Haute Autorité de Santé* (HAS),
- it must have sustainable public funding that is completely independent of industry, without advertising or sponsorship,
- the members of the scientific advisory board must have no conflicts with the healthcare industry and their interests must be declared and managed.

Organisation of the health information observatory²³



2.4. Coordinating stakeholders and anticipating

To avoid being subjected to disinformation and to be able to counter it upstream, we must move from reactive communication to proactive communication on accurate health information. Coordinated communication on risky topics must be put in place ahead of public health campaigns. The observatory's role will be to facilitate coordination between health information stakeholders.

²³ Credit: <https://www.flaticon.com/fr/>

Chapter 4: Disinformation

Observation: risks to individual health and social cohesion

- When citizens want to find out about vaccines and buy a book, they go to their usual online shopping platforms or browse the book section of a supermarket. Most of the references offered will alarm them and suggest that they read up on an "impending health disaster", "global genocide", etc. People with low health literacy find it difficult to find a book that presents the benefits and risks of vaccines without misleading them.
- The claim, born of scientific fraud, linking the measles vaccine to autism and which appeared nearly thirty years ago, continues to circulate.²⁴ The numerous studies invalidating it are little known outside specialist circles.
- Some patients interrupt essential treatments on the advice of naturopaths or "alternative practitioners" who take advantage of medical deserts, self-attributed titles and the confusion between medicine, care and pseudo-therapies. The consequences can be serious, sometimes dramatic, without these "practitioners" being held accountable.

How did we get here? Isn't it surprising that, in most cases, it is a small number of people who know how to exploit the media, the low literacy of the public, and the anxiety and credulity of those who finance them?

Will the disinformation that has always existed continue to thrive? Will we see a polarisation of societies as a result of health disinformation that fragments audiences and families? Opinions and beliefs are becoming more entrenched, often to the detriment of knowledge and science. How can we improve our society's resilience in the face of these dangers?

²⁴ Wakefield AJ, et al. Ileal-lymphoid-nodular hyperplasia, non-specific colitis, and pervasive developmental disorder in children. *Lancet* 1998;351:637-641. [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(97\)11096-0/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(97)11096-0/fulltext)

1. Themes of health disinformation

Non-conventional care practices

PSNC refer to practices also known as "traditional medicine", "alternative medicine", "complementary medicine", "natural medicine". These practices are diverse, both in terms of the techniques they use and the theoretical foundations they invoke. The Ministry of Health states that PSNC have in common that they are neither scientifically recognised by conventional medicine nor taught during the initial training of health professionals.^{25 26}

These so-called alternative or integrative practices often lack robust evaluation, whether it be auriculotherapy, reflexology, fasciotherapy, fire cutters, etc. They become dangerous when they interrupt ongoing treatments. There is evidence of entryism in universities and hospitals via certain university diplomas or university hospital structures, creating an institutional label effect that reinforces the credibility of these approaches in the public eye.

Vaccines

Broad accusations of toxicity, ineffectiveness or plans to control citizens (chips, 5G, population reduction) are being made. There is a disproportionate emphasis on real or supposed adverse effects, to the detriment of the proven individual and population benefits.

Food and nutrition

The promotion of extreme, deficient or "miracle" diets, prolonged fasting and unjustified dietary supplements is appealing. The strategies of agri-food lobbies are well known: misleading communication, funded and biased studies, use of low-quality journals to produce favourable "science", particularly against public health tools such as the Nutri-Score.

Despite its solid scientific basis and numerous independent studies, Nutri-Score is a textbook case of strong initial resistance from manufacturers, followed by gradual adoption under pressure from citizens and institutions. Organised attacks using "liberticidal" or "hygienist" rhetoric persist in an attempt to discredit the tool and the researchers who support it. Lobbyists prefer to keep the public in the dark by fighting against mandatory information requirements.

Unvalidated or misused treatments

Medicines are promoted off-label on the basis of low-quality trials, case series or arguments from authority. Products such as hydroxychloroquine, ivermectin, vitamins and methylene blue have been promoted without evidence for multiple indications, as have many remedies presented as risk-free "because they are natural". They expose patients to unknown risks or

²⁵ Conseil national de l'Ordre des médecins. Pratiques de soins non conventionnelles et leurs dérivés.. 27 June 2023. <https://www.conseil-national.medecin.fr/publications/communiqués-presse/pratiques-soins-conventionnelles>

²⁶ Mission ministérielle de vigilance et de lutte contre les dérives sectaires.. Activity Report 2022-2024. <https://www.miviludes.interieur.gouv.fr/rapport-dactivite-2022-2024-de-miviludes>

risks associated with the new indication, which are often minimised, and delay access to effective or even essential treatments.

Mental health

Simplistic or erroneous narratives exist around attention deficit disorder with or without hyperactivity (ADHD), autism spectrum disorder (ASD), depression, etc. These narratives expose patients to major risks of diagnostic and therapeutic uncertainty.

Women's health

The lack of research and expertise on certain female conditions (endometriosis, implants, etc.) creates a particularly fertile ground for disinformation. This information vacuum is exploited by certain actors who offer pseudo-scientific explanations and diagnoses. By promising to listen and recognise patients' concerns, these narratives exploit their credulity and sometimes divert them from proven treatments, reinforcing diagnostic uncertainty and the risks of delayed treatment.²⁷

Environmental risks and climate change

These risks seem distant, are still poorly understood, and fuel rumours and misinterpretations in a context of uncertainty. Depending on economic or ideological interests, scientific uncertainty is used as an argument to delay measures, sell products that are supposed to protect, or conversely, make alarmist statements without scientific basis.

2. Actors involved in health disinformation

Any citizen can become a perpetrator of health disinformation by relaying false information without verifying the accuracy and quality of the sources. A small number of actors skilled in the use of media and social networks spread disinformation by exploiting the low health literacy, anxiety, vulnerability and search for meaning of a section of the population.

Ordinary citizens as "local influencers": within a community, individuals gain enough influence to spread inaccurate beliefs (about cancer, vaccines, HIV, etc.) or inappropriate practices.

Pseudo-experts and influencers: they use short formats and social media to spread sensationalist messages, often without consistency or continuity. They are skilled at using digital codes to create unfounded but highly viral messages, mixing anecdotes, denunciations of institutions and promises of simple solutions.

²⁷ Le Hen S, Le Moël MM. Les négligées. Enquête au coeur du business de la santé des femmes. Harpercollins February 2025, 250 pages.

Conspiracy groups: anti-vaccination movements, extremist movements or sectarian groups. Highly structured and often well-funded by their communities or donations, they have a strong capacity for mobilisation and do not hesitate to harass or intimidate experts, or even resort to intimidation lawsuits to silence dissent.

Certain scientists, health professionals and wellness practitioners: their status or prestigious titles – whether real or usurped – give them artificially high credibility (the "white coat effect"). They relay or produce misleading messages, often outside their field of expertise, and may promote unproven treatments to gain visibility, most often backed by a business model (consultations, training, product sales). The impact of some is amplified by their high media exposure, their access to students and their ability to create or run academic or para-academic structures that maintain confusion with scientific legitimacy.

Public authorities and politicians: certain unfounded positions (on alcohol, medicines, vaccines, masks, etc.) have a major impact in terms of the credibility of public discourse and health, and confer a great responsibility on them. Some figures even go so far as to deliberately spread misleading narratives for purely electoral reasons. It should be noted that four of the political parties contacted did not respond to our requests for interviews despite several reminders.

Industries and lobbies: their strategies have been very well documented in the tobacco, alcohol, agri-food and certain health product sectors. They create doubt, exploit research, manipulate data and publish in low-quality journals. They finance sham NGOs, think tanks, opinion leaders and patient associations, which they manipulate. Some strategies are explicitly based on disinformation.

Mainstream media: in their quest for audience ratings or due to a lack of scientific literacy, some programmes relay false information or give disproportionate visibility to unfounded opinions, presenting them on the same level as established facts. The juxtaposition, in the name of a supposed "balance" or equal speaking time, of robust scientific data with beliefs, opinions or individual cases poses a real danger to public health. By blurring the lines and maintaining a false symmetry between knowledge and opinion, these practices seriously undermine the public's access to accurate information.

Digital media: social networks promote polarisation and virality by highlighting the most engaging content rather than the most reliable.²⁸ Disinformation relies heavily on emotional manipulation — anxiety, scandals, disruptive narratives, attacks on institutions — to capture attention. An anonymous post can have more visibility than scientific facts.

²⁸ Bronner G - edited by - Les lumières à l'ère numérique. Presses Universitaires de France 2022, 232 pages.

Digital platforms thus play a central role: their editorial and algorithmic policies determine the dissemination and impact of false information, making them key players in health disinformation. This is amplified by a recent decline in human moderation.

It should be noted that the only explicit refusal to be interviewed as part of our mission was that of the X/Twitter platform.

3. Motivations for spreading disinformation

Health disinformation can have many motivations: economic, ideological, personal beliefs, foreign interference, etc.

Economic motivations: the lure of profit is central. It is based on the sale of products, training courses, various supplements or pseudo-therapies, appeals for donations, the monetisation of online content, paid influence, as well as the search for audience and advertising revenue. Certain sectors (tobacco, pharmaceuticals, parapharmaceuticals, medical devices, agri-food, and wellness) deliberately use disinformation to expand their markets.

Ideological, religious or political motivations: some actors spread these messages out of conviction or to support political causes.

Foreign interference: a documented strategy aimed at destabilisation, social polarisation and the discrediting of institutions. We have received reports of the use of fake accounts, coordinated campaigns and the financing of influencers.

4. The consequences

Health disinformation has particularly serious consequences: it endangers lives, undermines public health by fuelling vaccine refusal, rejection of effective treatments or the use of dangerous practices, and thus promotes the resurgence of preventable diseases or the worsening of pathologies. It also has major but poorly assessed economic and organisational impacts, increasing the costs of preventable complications, overburdening the healthcare system and mobilising significant resources to correct or counter disinformation. Research and innovation can also be delayed when biased or unfounded data circulates, discrediting science or diverting efforts towards illusory solutions.

Finally, disinformation fuels lasting mistrust of health authorities, scientists and health professionals, while accentuating the polarisation of society. Ultimately, it contributes to undermining confidence in institutions and democracy.

Recommendations

1. Develop a public information and disinformation prevention plan in each institution

Mobilise all stakeholders – agencies, ministries, universities, national research organisations, healthcare institutions, academies, learned societies, associations and organisations involved in health – by implementing and publishing their information and disinformation control plans. A model plan is provided in Appendix 6.

This plan should, for example:

- clearly specify the institution's **ambitions** and priorities,
- organise **regular introspection** on information production and dissemination practices,
- define communication rules, including the management of conflicts of interest and validation channels,
- report periodically on the actions taken and the results achieved.

Hcéres, during its evaluations, and HAS, during its certifications, could introduce an element on the presence or absence of such a plan, with the possibility for institutions to comment.

2. Rethinking the regulation of platforms

Rethink, at European level, the regulation of digital platforms which now act, through their algorithms, as genuine media players with an editorial policy, and no longer as mere content hosts.

This point is not covered by the current European Digital Services Act (DSA).

Chapter 5: Detection

Observation

Detecting false information is now an essential part of the fight against health disinformation. Disinformation campaigns often follow predictable cycles linked to public health campaigns, such as vaccination campaigns, which are easy to anticipate with appropriate information and communication. Detection aims to identify less predictable weak signals, identify emerging pockets of disinformation, analyse dissemination dynamics and trigger proportionate responses before disinformation spreads into an infodemic.

1. Detection is still largely manual

The detection of health disinformation relies on essentially manual and scattered approaches, mobilising journalists, public institutions, associations and researchers. They carry out artisanal monitoring of the scientific press, preprints and predatory journals, the media, social networks and the largest accounts spreading false information. There is no common tool, national framework or information sharing system.

Social listening tools (mostly automated monitoring activities carried out on social media) are used on an ad hoc basis and allow keywords to be tracked, but often too late in the viral phase.

2. Account monitoring and mapping of propagators

Some research teams and specialised actors monitor influential accounts that disseminate misleading content. This work is based on graph theory and semantic analysis to map communities, identify super-spreaders and trace foreign interference. However, there is currently no mechanism for aggregating the results of this work.

3. Access to data and collaborations

Despite the existence of the DSA, researchers and institutions have faced restricted access to platform data since 2023 (closure of X/Twitter APIs, restrictions on Meta). The lack of sustainable funding prevents the continuity of observatories and the pooling of data from research and public agencies.

Recommendation

Develop an infovigilance system within the health information observatory

Its mission is to identify, verify and inform.

1. **Identify:** structure a reporting and detection organisation

- Integrate a reporting module into the national reporting portal, enabling the reporting of false information observed that may have an impact on health.
- Collect alerts and analyses from health agencies, learned societies, platforms, regional health agencies and other institutional actors.
- Include the health sector in Viginum's remit and involve it in identifying foreign digital interference in health matters.
- Set up a monitoring system (media, social networks, forums, etc.) including the tracking of influential accounts, the analysis of weak signals and the automated detection of suspicious content.
- Continuously map emerging narratives to anticipate the spread of misleading or dangerous stories.

2. **Verify:** analyse and qualify misleading content

- Assess the credibility, potential virality and risk to public health of each detected signal.
- Produce a structured and documented analysis to guide the response (informational, institutional, regulatory).

3. **Inform:** organise a gradual, rapid and coordinated response

- Define appropriate response procedures: simple clarification, institutional clarification, mobilisation of experts, proactive communication.
- Coordinate and promote communication between stakeholders (ministries and agencies, health professionals and scientists, local health professional communities, the Health Promotion Federation, user associations, local authorities, the national education system, etc.).
- Reach audiences where they get their information, through a presence on social media and platforms.
- Initiate an administrative or legal response where appropriate.

Chapter 6: Sanctions

We believe that we are in a state of information warfare and that health is one of the vectors of attack on democracy. In such a context, implementing countermeasures is strategic. The legal framework for combating health disinformation exists, but it is fragmented across several legislative and regulatory mechanisms (see Appendix 7).

The penalties are little known to citizens and professionals alike and are rarely enforced. **The perceived impunity reinforces the credibility of disinformers in the field of health disinformation.** There is an asymmetry: doctors and scientists who present scientific facts are prosecuted before disciplinary or judicial bodies, while those who spread disinformation are rarely prosecuted or punished. The intimidation of scientific experts and whistleblowers, in the form of intimidation lawsuits or threats on social media, for example, creates a climate of fear that reduces or even silences some people.

We have had various suggestions to add legislation and create new offences (such as health disinformation offences), but the priority is to enforce existing laws and regulations.

1. Multiple actors and diffuse responsibility

No actor currently has a clear, cross-cutting mandate to combat health disinformation. Responsibilities are scattered among several institutions, whose actions remain partial, sectoral or limited.

ARCOM: regulates the audiovisual media and supervises certain obligations of platforms. Its action, which must preserve freedom of expression, is hampered by the territoriality of digital technology and the limits of applicability of the European Digital Services Act (DSA).

DGCCRF (Directorate-General for Competition, Consumer Affairs and Fraud Control): intervenes in misleading commercial practices (products, food supplements, medical devices), but its scope is focused on consumption.

CNIL (National Data Protection Commission): monitors the use of personal data and algorithmic transparency obligations; its intervention does not directly concern misleading content.

Professional bodies: have disciplinary powers, but their actions are sporadic, receive little media coverage, are often lengthy, and mainly focus on individual practices.

Academic and research institutions and foundations: internal procedures (integrity/ethics officers) with decisions taken by the heads of institutions; the processes are lengthy, low-profile and focused on individual cases.

Judicial authorities: rarely intervene; many complaints are dismissed due to lack of evidence or lack of prioritisation.

JDHU (Disciplinary Jurisdiction of Hospital Teaching Staff): this is the national disciplinary body for university hospital practitioners.

This fragmentation results in a **lack of national coordination** and low visibility for both professionals and the public.

2. Heterogeneous sanctions depending on the actors

Disinformers belong to various categories. Legal tools exist, but their application is difficult, not very visible, and sometimes ineffective.

2.1. Citizens

Several general texts (the Criminal Code, the Civil Code, the 1881 Press Law) can be used to punish defined abuses of freedom of expression:

- **criminal penalties:** fines, suspended sentences, imprisonment in cases of endangering the lives of others, illegal practice, harassment, dissemination of false information dangerous to public health,
- **civil liability:** damages for harm suffered,
- **administrative penalties:** fines or withdrawals for promoting illegal products (DGCCRF).

In practice, these penalties are **difficult to enforce** due to the complexity of identifying and legally qualifying abuses and limited recourse.

2.2. Media and journalists

Framework: 1881 law, Munich Charter, opinions of the CDJM (Journalistic Ethics and Mediation Council), ARCOM decisions.

Possible sanctions:

- reprimands, injunctions to publish corrections, loss of accreditation, damage to reputation,

- fines by ARCOM in the event of repeated breaches of obligations.

Financial sanctions remain a weak deterrent, and the necessary respect for freedom of expression limits the action that regulators can take.

2.3. Digital platforms

The DSA, the European Code of Practice, and the decisions of ARCOM and CNIL allow for the application of sanctions:

- major administrative fines for failure to moderate or remove illegal content (Meta, YouTube, etc.),
- demonetisation, page removal, delisting.

2.4. Influencers

Law No. 2023-451 of 9 June 2023, which aims to regulate commercial influence and combat abuses by influencers on social media, has been applicable since its amendment by order in December 2024. This law establishes a clear definition of the activity of commercial influencer in Article 1 and, in Article 4, prohibits commercial influence on several public health issues: "the direct or indirect promotion of non-therapeutic products, acts, processes, techniques and methods presented as comparable, preferable or substitutable for therapeutic acts, protocols or prescriptions", "the direct or indirect promotion of products considered to be nicotine products", the "direct or indirect promotion of aesthetic procedures, processes, techniques and methods that may pose a risk to human health." These new explicit restrictions on commercial influence can now be enforced using the regulatory mechanisms of the European DSA.

2.5. Scientists and healthcare professionals

For all these professionals, there are codes of ethics with disciplinary procedures, charters such as the charter for responsible content creators who are also doctors, and charters for public expression.

Depending on the profession, sanctions may include:

- warnings, strikes off, bans on practising, reprimands, suspensions,
- prosecution for illegal practice of healthcare professions or charlatanism, financial penalties.

These cases, which receive little media coverage, are sometimes lengthy and may even be dismissed.

Recommendation

Reverse the risk: punish those who spread disinformation and protect scientists

- **Strictly enforce existing legislation** by administrative, disciplinary and legal authorities rather than creating new offences. The penalties provided for in the Public Health Code against quackery, the illegal practice of healthcare professions or sectarian abuses must be systematically applied, as must the disciplinary powers of professional bodies and research institutions for scientists who violate public expression charters. A consistent and firm administrative, disciplinary and legal response is essential to protect the public and restore confidence.
- **Communicate about the sanctions** applied to deter others.
- **Monitor associations that orchestrate harassment campaigns.**
- **Strengthen the regulation** of the media and social networks.
- **Protect scientists who report information:** today, those who report accurately are more exposed than those who spread disinformation. This dynamic must be reversed by
 - systematically applying functional protection²⁹ providing legal and institutional support to public officials who are threatened,
 - creating a **permanent structure for the defence of science** to provide support to scientists and healthcare workers who are victims of attacks and to finance legal action against disinformers.

²⁹ Functional protection is an obligation for the administration to protect any public official who is threatened or attacked in connection with their duties, provided that no personal fault unrelated to their service can be attributed to them.

Chapter 7: Research

Observation

In France, research into infodemiology is fragmented, even though there are initiatives such as that of the *ANRS-MIE* (coordinated action on infodemics and information flows in the context of an epidemic).

The collective incentive to develop research primarily involves the allocation of targeted resources. Because the battle for scientific information is being fought on a global scale, efforts must be considered at both the national and European levels.

As was the case with scientific integrity, it would be appropriate for Europe, including France, to take international leadership in order to better combat disinformation, particularly disinformation in the field of health.

Recommendations

1. Make infodemiology a research priority through a PEPR (*Programme et Équipement Prioritaire de Recherche*)

Gain a better understanding of narratives, algorithmic mechanisms, health behaviours, economic costs and effective communication strategies.

This PEPR could focus on the following themes:

- structural mechanisms and dynamics of information and disinformation,
- a multidimensional approach of producers and consumers of health disinformation,
- evaluation of the effectiveness of scientific communication,
- health topics and specific populations: case studies,
- governance, coordination and structural aspects of health information correction,
- economic assessment and health impact of disinformation,
- evaluation of the evaluation of critical thinking education and training,
- combating disinformation: technological innovations and conditions for adoption.

This programme will favour multidisciplinary formats (involving stakeholders from the fields of information technology, health information, target audiences, health professionals, etc.) and multi-methodological approaches (qualitative, quantitative and digital).

2. Promoting infodemiology in European calls for tenders

Lobby European authorities to promote the integration of this field into research calls for tenders in order to strengthen international collaboration.

Appendices

Appendix 1: Mission statement



Le Ministre

Paris, le

27 AOÛT 2025

Nos Réf. : D-25-015986

Le ministre chargé de la santé et de l'accès aux soins

A

Professeur Mathieu MOLIMARD
Madame Dominique COSTAGLIOLA
Docteur Hervé MAISONNEUVE

Objet : Lettre de mission d'appui à la structuration de la lutte contre la désinformation en santé

La diffusion de fausses informations en matière de santé représente aujourd'hui un défi majeur pour notre démocratie sanitaire, pour la confiance dans les institutions, et pour la sécurité des patients. La multiplication des canaux d'information, l'essor des réseaux sociaux et la viralité des contenus mensongers ou trompeurs ont renforcé les risques liés à la désinformation pour les patients et la santé publique.

Face à ce constat, il est impératif de structurer une réponse à la hauteur de ces enjeux, fondée sur la science, la transparence et la mobilisation et la coopération des différents acteurs.

Je vous confie, à ce titre, une mission d'expertise indépendante, visant à dresser un état des lieux des initiatives existantes et à formuler des propositions opérationnelles pour renforcer et pérenniser la lutte contre la désinformation en santé en France.

Votre mission portera sur les volets suivants :

1. **Identifier les acteurs publics, associatifs, professionnels ou académiques** engagés ou mobilisables dans la lutte contre la désinformation en santé ;
2. **Recueillir leurs retours d'expérience**, identifier les bonnes pratiques, les attentes, les initiatives pertinentes et les freins rencontrés ;
3. **Évaluer le niveau de coordination** actuel entre ces acteurs, ainsi que les mécanismes de coopération, de partage d'information et d'alerte existants ;
4. **Formuler des recommandations concrètes et opérationnelles**, en vue de structurer, renforcer et pérenniser une stratégie nationale de lutte contre la désinformation en santé.

Cette mission vient renforcer **les travaux engagés dans le cadre du comité de pilotage de la lutte contre la désinformation** visant à structurer **la stratégie nationale de lutte contre la désinformation en santé** que j'ai mis en place à cette fin. Elle vise à éclairer les décisions à venir en fondant les actions publiques sur une analyse rigoureuse, partagée et nourrie des réalités de terrain.

Adresse postale
14 avenue Duquesne
75350 PARIS 07 SP

Le traitement des données est nécessaire à la gestion de la demande et entre dans le cadre des missions confiées aux ministères sociaux.
Conformément au règlement général sur la protection des données (RGPD), l'intervenant peut exercer ses droits à l'adresse ddc-rpnd-cab@ddc.social.gouv.fr ou par voie postale.
Pour en savoir plus : <https://sante.gouv.fr/ministere/article/donnees-personnelles-et-cookies>

Je vous demande de conduire cette mission dans un esprit de dialogue, d'ouverture et de rigueur scientifique. Votre expertise, votre complémentarité et votre engagement sont des atouts essentiels pour assurer la crédibilité et la portée des conclusions qui seront remises.

J'attends la remise des conclusions de vos travaux pour le mois de décembre. Je choisirai alors les modalités de leur communication.

Les services du ministère, ainsi que la Direction générale de la santé, seront à votre disposition pour vous apporter leur concours dans le cadre de vos travaux.

Je vous remercie par avance pour votre mobilisation au service de cet enjeu fondamental pour notre pays.

Veuillez agréer, Professeur, Madame, Docteur, l'expression de ma haute considération.

*Ben
Corduloneur*



Yannick NEUDER

Appendix 2: Interview outline

Interview as part of the mission to fight health disinformation

Thank you for agreeing to this interview as part of the mission to combat health disinformation entrusted to us by the Minister of Health, Yannick Neuder. We would like to record our discussion in order to produce an accurate report. Your comments will be anonymised and you will not be identifiable. This interview is confidential and you may stop it at any time without giving a reason.

The notes taken during the meeting will be submitted to you for review and comment.

The results will be communicated to you when our report is submitted.

Below is an outline that can be modified depending on the interview.

Part A – Introduction of the interviewee

1. Can you briefly introduce your organisation and your role?
2. Is your organisation involved or has it been asked to participate in the fight against health disinformation? If so, on what topics?

Part B – Definition/Feedback

3. How would you define health disinformation?
4. What do you think are the root causes?
5. What types of health disinformation have you encountered most often?
 - a. Outside or within your environment?
 - b. How did you identify it?
6. Have you implemented specific measures to address it, and if so, what tools did you use? Please describe.
7. What are the limitations or difficulties encountered?

Part C – Cooperation/Coordination

8. Do you work with other organisations on this issue? Which ones?
9. Is there any formal coordination? At what level (local, national, European)?
10. Do you consider these cooperation arrangements to be effective?

Part D – Expectations/Proposals

11. In your opinion, what are the priority needs for strengthening the fight against health disinformation?
12. What do you think should be the role of the State/Ministry in combating health disinformation, and do you see a need for further legislation on this issue?
13. Do you have any best practices you would like to share?
14. If you had to propose one or two structural measures, what would they be?

Closing

Thank you very much for your contribution.

Do you have any ideas that you think are important and have not been considered in our interview, or even key people to interview?

Appendix 3: Alphabetical list of interviewees

Adenot	Isabelle	Agence numérique en santé
Affeltranger	Bastien	Société française de santé publique
Amiel	Philippe	Avocat - Collège de déontologie Inserm
Andrejak	Claire	Société de pneumologie de langue française
Annweiler	Cédric	Société française de gériatrie et gérontologie
Aquino	Jean-Pierre	Société française de gériatrie et gérontologie
Bachelot	Roselyne	Ancienne ministre
Baghdadli	Amaria	Centre de ressources autisme Languedoc-Roussillon
Bagot	Martine	Conseil national de l'ordre des médecins
Barbet	Serge	Centre pour l'éducation aux médias et à l'information
Barin	Francis	Société française de virologie -- Société française de microbiologie
Barraud	Damien	Centre hospitalier régional Metz-Thionville
Barrière	Jérôme	Oncologue
Bassi	Frédéric	Académie nationale de pharmacie
Bégaud	Bernard	Ancien président de l'Université de Bordeaux
Belghiti	Jacques	Académie nationale de médecine
Benz	Stéphanie	L'Express
Berland	Yvon	France Universités
Berrod	Nicolas	Le Parisien
Besançon	Lonni	Enseignant chercheur en visualisation de données
Bienvenu	Anne-Lise	Académie nationale de pharmacie
Blanchet	Fabienne	Conseil national de l'ordre des pharmaciens
Boissier		
Descombes	Amélie	Médecin du travail
Bonin-Guillaume	Sylvie	Société française de gériatrie et gérontologie
Bonnet	Pierre-Antoine	Académie nationale de pharmacie
Borry-Estrade	Elisa	Meta
Boukacem-Zeghmouri	Chérifa	Université Claude Bernard Lyon 1
Bouldouyre	Marie-Anne	Centre régional en antibiothérapie Île-de-France
Boyer	Sylvie	IRD
Brand-Gazeau	Gaultier	TikTok
Braun	François	Ancien ministre de la santé
Briand	Sylvie	Organisation Mondiale de la Santé
Brillant	Marc-Antoine	Viginum
Brunet	Margot	Journaliste sciences/santé
Bubien	Yann	Agence régionale de santé PACA
Buisson	Yves	Académie nationale de médecine
Buzyn	Agnès	Cour des comptes
Caillé	Yvanie	Association Renaloo
Cavicchioli	Lionel	The Conversation
Certoux	Mathilde	ANRS Maladies infectieuses émergentes
Charpentrat	Julie	AFP
Chatelain	Carole	Association des journalistes scientifiques et de la presse d'information
Chapdaniel	Sébastien	Société française de recherche des infirmiers en pratique avancée
Chavalarias	David	CNRS
Chêne	Geneviève	Université de Bordeaux - CHU de Bordeaux

Cherifi	François	Centre François Baclesse, Caen
Chevallier	Coralie	Haut conseil de l'évaluation de la recherche et de l'enseignement supérieur
Chevance	Cécile	Fédération hospitalière de France
Claudot	Frédérique	Haut conseil de la santé publique
Clerici	Christine	France Universités
Cohen	Gérard	Médecine générale
Collet	Lionel	Haute Autorité de Santé
Collin	Emmanuel	Institut national du cancer
Constantin	Jean-Michel	Société française d'anesthésie et de réanimation
Cordonier	Laurent	Fondation Descartes
Cotte	Suzanne	Conseil national de l'ordre des pharmaciens
Couronne	Vincent	Les surligneurs
Courret	Nathalie	Santé Magazine
Couteron	Jean-Pierre	Société française de santé publique
Cracowski	Jean-Luc	Société française de pharmacologie et thérapeutique
Crémieux	François	Assistance Publique - Hôpitaux de Marseille
Crestani	Bruno	Fondation souffle
Cuny	Marie-Amélie	France Universités
Cymes	Michel	Journaliste médico-scientifique
D'Ortenzio	Eric	ANRS Maladies infectieuses émergentes
Daoust	Antoine	Fondateur du site de fact-checking Fact & Furious
Daoust	Martine	Fédération des communautés professionnelles territoriales de santé
Delpech	Vincent-Nicolas	Directeur général - CHU de Bordeaux
Dimeck-Ghione	Alexandre	Mutuelle générale de l'éducation nationale
Daumas	Clément	Délégation aux affaires européennes et internationales
Dautieu	Thomas	Commission nationale de l'informatique et des libertés
de Brémond d'Ars	Pierre	No FakeMed
de Frouville	Margaux	BFM TV
de Kervasdoué	Jean	Académie des technologies
de la Volpilière	Alexandre	Agence nationale de sécurité du médicament et des produits de santé
De Surgy	Anne Sophie	Parti socialiste
Dedieu	Florence	Association des professionnels de l'information et de la documentation
Deplanque	Dominique	Société française de pharmacologie et thérapeutique
Domblides	Philippe	Conseil national de l'ordre des médecins
Dubertret	Louis	Académie des technologies
Dubois	Michel	Office français de l'intégrité scientifique
Dumas	Jean-François	Ordre des masseurs-kinésithérapeutes
Dupin	Marie	France Inter
Dupouy	Julie	Conseil national des généralistes enseignants
Durand	Thomas	La tronche en biais
Durand	Pierre-André	Préfet de la région Occitanie
Duriez	Rachel	Service public d'information en santé
El Mestiri	Malika	Délégation aux Affaires Européennes et Internationales
Etcheverry	Pascale	Vaccination & lien social
Facon	Thierry	Académie nationale de médecine
Faillat	Valérie	Académie nationale de pharmacie
Falkowicz	Séverine	Enseignant chercheur en psychologie
Ferron	Christine	Fédération promotion santé
Fiessinger	Jean-Noël	Académie nationale de médecine
Fischer	Alain	Académie des sciences
Flahaut	Antoine	Professeur de santé publique

Forejt	Marianne	Délégation aux affaires européennes et internationales
Foucart	Stéphane	Le Monde
Frachon	Irène	Centre hospitalier universitaire, Brest
France	Georges	Académie nationale de pharmacie
Frank	Fabrice	Surfeur de la désinformation
Fries	Fabrice	AFP
Gacoin	Marie-Pauline	Centre national de la recherche scientifique
Gainza	Laurent	Les entreprises du médicament
Garcia	Victor	L'Express
Gargoly	Céline	Caisse nationale de l'assurance Maladie
Gascan	Hugues	Groupe d'études du phénomène sectaire
Gatignol	Chantal	Miviludes
Gauthier	Florian	Ingénieur data science directeur du projet Vera
Gayat	Etienne	Assistance Publique - Hôpitaux de Paris
Gerbier	Léonie	Fédération française des diabétiques
Gilleron	Véronique	Haut conseil de la santé publique
Goetzmann-Magd	Peggy	Santé publique France
Gouthière	Florian	Journaliste
Gozlan	Marc	Journaliste médico-scientifique
Grably	Raphaël	BFM TV
Gras-Le Guen	Christèle	Société française de pédiatrie
Grognet	Jean-Marc	Académie nationale de pharmacie
Groyer	Emilie	Rose Magazine
Guimirot-Beraud	Hélène	Commission nationale de l'informatique et des libertés
Guiroy	Thibault	YouTube
Haït	Jean-François	Association science feedback
Halfen	Sandrine	ANRS Maladies infectieuses émergentes
Hariti	Nadège	Caisse nationale de l'assurance maladie
Henry	Emmanuel	Centre national de la recherche scientifique
Hérault	Augustin	Fédération hospitalière de France
Hercberg	Serge	Equipe de recherche en épidémiologie nutritionnelle
Hertel	Olivier	Le Point
Huchon	Thomas	Journaliste
Humbert	Marc	Conférence des doyens de médecine
Huré	Gwladys	Caisse nationale de l'assurance Maladie
Idri	Makhlouf	Haut conseil de la santé publique
Ifrah	Norbert	Institut national du cancer
Jaulhac	Benoit	Société française de virologie - Société française de microbiologie
Jomier	Bernard	Sénat
Jonville-Bera	Annie-Pierre	Réseau français des centres régionaux de pharmacovigilance
Josseran	Loïc	France Universités
Jourdan	Isabelle	Assistance Publique - Hôpitaux de Paris
Judde	Benoît	Détective privé
Kirchner	Claude	Comité national pilote d'éthique du numérique
Labadie	Magali	Société française de toxicologie
Lacombe	Karine	Professeur de maladies infectieuses, Hôpital Saint Antoine
Lacroix	Corentin	WhyDoc
Laffont	Isabelle	Conférence des doyens de médecine
Langrand	Jérôme	Centre anti poison
Laurent	Brice	ANSES
Lavie	Frédéric	Les entreprises du médicament
Le Guludec	Dominique	Ancienne présidente de la HAS

Le Meur	Hélène	Office français de l'intégrité scientifique
Le Moign	Raymond	Hospices civils de Lyon
Le Quellec	Sophie	ANSES
Le Strat	Yann	Santé publique France
Le-Saulnier	Carole	Agence nationale de sécurité du médicament et des produits de santé
Leblanc	Guillaume	Relex Elsevier
Lebranchu	Yvon	Académie nationale de médecine
Leccia	Marie-Thérèse	Conférence nationale des présidents de CME-CHU
Legall	Laure- Emmanuelle	Fondation Ramsay Santé
Léger	Jean-Marc	Académie nationale de médecine
Lehmann	Christian	Médecin généraliste
Lemarchand	Grégoire	AFP
Lenoir-Salfati	Michèle	Agence nationale du DPC
Lepelletier	Didier	Direction générale de la santé
Lesage	Bénédicte	ARCOM
Létinier	Louis	Synapse
Leygues	Jessica	Institut des cancers des femmes, Institut Curie
Lewis	Dean	Président de l'université de Bordeaux
Limousin	Guillaume	Professeur de mathématiques en collège
Loutrel	Benoît	ARCOM
Maison	Patrick	Agence nationale de sécurité du médicament et des produits de santé
Marie-Malikité	Alima	Santé publique France
Marty	Jérôme	Union française pour une médecine libre
Masseron	Philippe	Groupement français de l'industrie de l'information
Massé	Elodie	Agence nationale de sécurité du médicament et des produits de santé
Mathieu	Pascale	Ordre des masseurs-kinésithérapeutes
Mebarki	Adel	Forsight
Mendès France	Tristan	Conspiracy Watch
Mesnier	Thomas	Horizons
Micallef	Joëlle	Centres d'évaluation et d'information de la pharmacodépendance
Migeot	Virginie	Fédération promotion santé
Millet	Bertrand	Délégation aux affaires européennes et internationales
Molina	Maxime	Fondation pour la recherche médicale
Moreau-Chevrolet	Philippe	Professeur de communication politique, Sciences Po Paris
Morel	Olivier	Collège national des gynécologues et obstétriciens
Moreul	Jean-François	Fédération des communautés professionnelles territoriales de santé
Mouchet	Sandrine	Rose Magazine
Mouthon	Luc	Société française nationale de médecine interne
Neuder	Yannick	Assemblée nationale, Groupe LR santé
Nourry	Caroline	The Conversation
Nguyen	Dany	Haut conseil de la santé publique
Oustric	Stéphane	Conseil national de l'ordre des médecins
Ouzoulias	Pierre	Sénateur
Pain	Julien	France Info
Pariante	Ann	Haut conseil de la santé publique
Pasquet	Armelle	ANRS Maladies infectieuses émergentes
Paugam-Burtz	Catherine	Agence nationale de sécurité du médicament et des produits de santé
Pecassou	Gilles	IRD
Peiffer-Smadja	Nathan	Maladies infectieuses, Hôpital Bichat
Pelissolo	Antoine	Parti socialiste
Périgaud	Christian	Centre national de la recherche scientifique

Perraudin	Aline	Santé Magazine
Persiani	Marie	Fédération promotion santé
Petit	Lucile	ARCOM
Pialoux	Gilles	Assistance Publique - Hôpitaux de Paris
Pinsault	Nicolas	Ordre des masseurs-kinésithérapeutes
Pitron	Henri	Institut Pasteur
Porquet	Nicolas	Centre national de la recherche scientifique
Prat-Diquelou	Jeanne	Fédération française des diabétiques
Prestel	Thierry	Haut Conseil de la santé publique
Quelet	Sylvie	Agence régionale de santé Aquitaine
Quesada	Stanislas	Société française du cancer
Rauzy	Odile	France Universités
Raymond	Gérard	France assos santé
Reichstadt	Rudy	Conspiracy Watch
Revel	Nicolas	Assistance Publique - Hôpitaux de Paris
Rieu	Anais	IRD
Rinuy	Laurence	Caisse nationale de l'assurance Maladie
Riou	Bruno	Conférence des doyens de médecine
Robert	Jacques	Société française du cancer
Robert-Motta	Clara	Les surligneurs
Rodrigues	Manuel	Société française du cancer
Rodriguez	Daniel	Elsevier
Rodriguez	Elise	Action santé mondiale
Roingeard	Philippe	France Universités
Ronai	Maurice	Journaliste projet Vera
Roussel	Fabien	Parti communiste français
Rouzioux	Christine	Professeur émérite de virologie
Sabrié	Marie-Lise	IRD
Sainati	David	Service public d'information en santé
Saint-Lary	Olivier	Conseil national des généralistes enseignants
Salomon	Rémi	Conférence nationale des présidents de CME-CHU
Samuel	Alexander	Enseignant
Samuel	Didier	Institut national de la santé et de la recherche médicale
Saout	Christian	Haute Autorité de Santé
Sauneron	Sarah	Direction générale de la santé
Savignac	Mathias	Mutuelle générale de l'éducation nationale
Schuler	Matthieu	ANSES
Sellier	Pascal	Journaliste
Semaille	Caroline	Santé publique France
Serrano	Barbara	Collectif « Du côté de la science »
Serre	Olivier	Agence régionale de santé Aquitaine
Sieffert Dance	Laetitia	Organisation mondiale de la santé
Sillion	Léo	Doctolib
Siret	Claire	Conseil national de l'ordre des médecins
Smadja	David	Le laboratoire de la république
Sonnac	Nathalie	Le laboratoire de la république
Sorel	Océane	The french virologist
Soulié	Rodolphe	Fédération hospitalière de France
Spire	Camille	AIDES
Siret	Claire	Conseil national de l'ordre des médecins
Staccini	Pascal	Coordination nationale des collèges d'enseignants en médecine
Stahl	Jean-Paul	Société de pathologie infectieuse de langue française

Taisne	Hélène	Commission nationale de l'informatique et des libertés
Tattevin	Pierre	Société de pathologie infectieuse de langue française
Thierry	Jean-Pierre	France assos santé
Triller	Antoine	Académie des sciences
Vabret	Astrid	Société française de virologie -- Société française de microbiologie
Van Hille	Géraldine	ARCOM
Varet	Florent	Anthropo-Lab, Institut Catholique de Lille.
Véran	Olivier	Ancien ministre de la santé
Vernet	Agnès	Association des journalistes scientifiques et de la presse d'information
Verny	Christophe	Conférence nationale des présidents de CME-CHU
Victorri-Vigneau	Caroline	Centres d'évaluation et d'information de la pharmacodépendance
Vincent-Salomon	Anne	Institut des cancers des femmes, Institut Curie
Vuillemin	Anne	Société française de santé publique
Ward	Jeremy	Inserm
Weinbach	Jérôme	Délégation aux affaires européennes et internationales
Wolf	Carine	Conseil national de l'ordre des pharmaciens
Yazdanpanah	Yazdan	ANRS Maladies infectieuses émergentes
Zerkdi	Asmaa	YouTube

Appendix 4: Methods

- A shared calendar was set up on the Google Calendar platform (<https://calendar.google.com>) to identify common availability slots and slots that were already booked.
 - Appointments were made for available slots between 8 a.m. and 7 p.m. on working days, with a 30-minute interval between each interview, via the Doodle platform (<https://doodle.com/meeting/organize/booking-page>).
 - Each booking made on Doodle automatically blocked the corresponding time slot in the shared calendar and generated a Google Meet link (<https://meet.google.com>) for the videoconference.
 - Upmeet artificial intelligence software (<https://www.upmeet.ai/fr>), which complies with the GDPR and stores data in Europe, was used to record videoconferences and automatically generate reports. This software launched automatically during Google Meet meetings.
 - A list of people to be interviewed, identified in advance on the basis of their potential role in health information, was drawn up. It was supplemented by a snowball effect, based on recommendations from people already interviewed. In addition, public communication about the mission (social media and press) generated spontaneous requests for interviews, all of which were taken into account either in the form of videoconference interviews or by sending out forms to be completed.
- A standardised questionnaire (see Appendix 2) was used as a framework for the interviews, and a Google Forms version, identical to the standardised questionnaire, was offered as an alternative to videoconference interviews.
- The reports generated were sent to participants for review and correction before being archived on the Resana platform (<https://resana.numerique.gouv.fr/>) for use in the drafting of the report.
 - Activity tracking, appointment management and reminders were also centralised on Resana, via the integrated Collabora Online office suite (<https://www.collaboraonline.com>).
 - Finally, ChatGPT-5 (OpenAI, <https://chatgpt.com>) and PerplexityPro (<https://www.perplexity.ai/>) artificial intelligence tools were used to support document drafting and report summarisation.
- The report was drafted in a Word document shared on SharePoint and english translation was assisted by DeepL software

Appendix 5: Info-Score Santé Project

to be developed and validated

In order to enhance the transparency, reliability and traceability of health information, it is proposed to introduce the **Info-Score Santé**. This evolving synthetic indicator would make it possible to assess the credibility of information sources by combining positive criteria (good practices) and negative criteria (risk factors), resulting in a clear classification ranging from A (excellent) to E (unsatisfactory).

The Info-Score Santé particularly values: transparency of conflicts of interest, the existence of an independent scientific advisory board, the quality and traceability of sources, regular updating of content and public correction of errors. Conversely, it penalises situations where industrial funding is dominant, where advertising for health products is omnipresent, where a significant proportion of primary sources come from journals not listed in the list of recommended journals established by the conference of deans of medical or health faculties and the CNU santé³⁰, and where content is neither dated nor corrected.

The overall score is based on a numerical scale and allows each health information provider to be classified into one of five categories: A, B, C, D or E. The aim of this system is to guide the public towards the most reliable sources, to strengthen incentives for good editorial practices and to highlight the risks of disinformation.

In this document, a listed journal is defined as a scientific journal included in the evolving list compiled by the Conference of Deans of Medical Faculties and the CNU Santé (National University Health Council).

³⁰ <https://conferencedesdoyensdemedecine.org/la-conference-des-doyens-de-medecine-et-du-cnu-sante-luttent-contre-les-revues-predatrices/>

1. Operational evaluation grid (summary)

Field	Criterion	Scale (points)
Positive criteria	Transparency of conflicts of interest	+0 to +10
	Scientific validation of content	+0 to +10
	Regular updating of content	+0 to +5
	Quality and traceability of sources	+0 to +10
	Transparent error correction	+0 to +5
Negative criteria	Industrial financing > 20%	-10
	Advertising for health products	-10
	Calls for donations linked to content	- 5
	Unsourced statements > 50%	-10
	Journals not listed >15%	-10
	No dating or correction policy	-5

2. Detailed scale by criterion

Transparency of interests (+0 to +10)

- 0 points: no information on links of interest is available.
- 5 points: partial declaration or difficult to access, or no formalised policy.
- 10 points: comprehensive declaration, easily accessible, formalised policy for managing conflicts of interest.

Scientific validation of content (+0 to +10)

- 0 points: no scientific advice, no documented expert review.
- 5 points: existence of expert advisors but irregular or untraceable reviews.
- 10 points: identified, independent scientific advisory board, systematic review of sensitive content, written traceability of validations.

Content updates (+0 to +5)

- 0 points: content is undated or never updated.
- 2 points: content is dated but there is no formalised revision policy.
- 5 points: at least annual revision policy, explicit mention of creation and revision dates.

Quality and traceability of sources (+0 to +10)

- 0 points: regular absence of references, or unsourced content.
- 5 points: references present but heterogeneous, <70% from listed journals.
- 10 points: references systematically indicated, ≥ 70% from listed journals or institutional sources (ANSM, ANSES, HAS, INCa, WHO, etc.).

Correction of errors (+0 to +5)

- 0 points: no correction policy, no mention of changes.
- 2 points: corrections made on an ad hoc basis without a public register.
- 5 points: public register of errata, corrections dated and accessible from the relevant content.

Negative criteria (penalties applied on an all-or-nothing basis)

- Industrial funding > 20%: -10 points if the share of funding linked to industrial health interests exceeds 20% of the organisation's total budget.
- Advertising for health products: -10 points if the organisation advertises health products, therapies or treatments, or non-conventional practices on its main media.
- Appeals for donations linked to content: -5 points if appeals for donations are directly associated with the content.
- Unsourced claims > 50%: -10 points if the majority of claims are not referenced.
- Unlisted reviews > 15%: -10 points.
- No date/correction policy: -5 points if the content is not dated and no correction policy is formalised.

3. Ranking grid (A to E)

The overall score is the sum of the positive points and negative penalties. It is then translated into a readability rating for the public.

Overall score	Class	Interpretation
+25 to +40	A – Excellent	Very high-quality information, exemplary transparency and governance
+10 to +20	B – Good	Generally reliable information, some room for improvement
0 to +9	C – Acceptable	Average quality, readable with caution
-1 to -10	D – Poor	Significant deficiencies, high risk of inaccurate or biased information
-15 to -50	E – Failing	Major risk of disinformation, lack of sufficient editorial safeguards

Appendix 6: Health information plan

Proposed framework

Public health information and disinformation prevention plan

Name of entity: _____

Plan approval date: _____

1. General overview

- Mission/scope
- Main target audiences
- Plan manager
- Internal monitoring committee
- Plan review frequency
- Financing arrangements

2. Current situation

- Organisation of health information within the entity
 - who, what, where, how, for whom?
- Detection and management of disinformation and disinformers

3. Action plan

Depending on the entity's scope of action, each person can consider current or planned actions, with their implementation timetable, in the following areas:

- Education
- Training
- Information
- Detection of disinformation and measures to be taken
- Regulations and sanctions
- Research

4. Indicators and evaluation

- Monitoring and impact indicators
- Evaluation methods
- Communication of results: methods and frequency
- Display of the plan on the entity's website

Appendix 7: Reference regulatory texts, charters and codes

We present here the main reference texts, without claiming to be exhaustive. Their content is not reproduced in detail; readers are invited to refer directly to the original documents:

- Article 11 of the 1789 Declaration of the Rights of Man and of the Citizen states: "*The free communication of thoughts and opinions is one of the most precious rights of man: any citizen may therefore speak, write and print freely, except in cases determined by law where abuse of this freedom is punishable.*"
- The Law of 29 July 1881 on freedom of the press protects the freedom of journalists' sources and prohibits the dissemination of false news that undermines public order and public health.
- The French Constitution of 4 October 1958 guarantees the freedom of expression, as does the case law of the Constitutional Council.
- The texts are found in the Penal Code, the Civil Code, the Consumer Code and the Public Health Code. They make it possible to condemn the illegal practice of medicine, pharmacy and other abuses, etc. Articles of the Penal Code contain penalties for public lying, endangering others, illegal practice of medicine and defamation. Article 40 of the Code of Criminal Procedure states: *Any constituted authority, public officer or civil servant who, in the exercise of their duties, becomes aware of a crime or offence is required to notify the public prosecutor without delay and to forward to that magistrate all information, reports and documents relating thereto.*
- Law of 9 June 2023 aimed at regulating commercial influence and combating the abuses of influencers on social networks.³¹
- Law of 10 May 2024 aimed at strengthening the fight against sectarian abuses and improving support for victims creates a new offence of incitement to abandon or refrain from seeking medical care and an offence of adopting practices that pose a risk to health.³²
- the JDHU (Disciplinary Jurisdiction for University Hospitals) is little known, difficult to access, ineffective, even opaque, and subject to unreasonable delays, according to the flash audit by the Court of Auditors in May 2002.³³ It should be improved.

³¹ <https://www.legifrance.gouv.fr/loda/id/JORFTEXT000047663185/2025-03-10>

³² <https://www.legifrance.gouv.fr/jorf/id/JORFTEXT000049523123>

³³ <https://www.ccomptes.fr/fr/documents/59838>

- The list of charters and codes of ethics is interesting, and we will mention just a few: the Munich Charter of Ethics for Journalists, which in 1971 listed ten duties and five rights; the Council for Journalism Ethics and Mediation is a mediation body between journalists, the media, press agencies and the public; codes of ethics for professions such as the medical code of ethics and the nursing code of ethics; charters, including those on public expression by researchers (CNRS and INSERM, for example); these charters specify the recommended use of institutional affiliations to avoid abuses by self-proclaimed experts. The CNOM (National Council of the Order of Medical doctors) has published a charter for responsible content creators in the medical field with the aim of promoting medical information that is both rigorous and accessible and protecting public health.
- In the field of scientific integrity, the 2010 Singapore Statement sets out four principles: honesty in all aspects of research, accountability in the conduct of research, professional courtesy and fairness in working with others
- , and good stewardship of research on behalf of others. The OFIS (French Office for Scientific Integrity), established in 2017, contributes to the definition of a national policy on scientific integrity.³⁴
- The Defender of Rights has been responsible for supporting whistleblowers since 2026. Its role has been considerably strengthened since the laws of 2022. The Defender of Rights' 2023 'Whistleblower' guide explains all responsible conduct and possible protections.³⁵

European texts:

- The Code of Practice on Disinformation (updated in 2022) is a pioneering framework for combating the spread of disinformation, approved by a number of relevant stakeholders. It has more than 40 signatories.
- the European Convention on Human Rights (ECHR) is an international treaty signed by member states that covers freedoms in general, including freedom of expression,
- The General Data Protection Regulation (GDPR) is a European regulatory text that harmonises the rules for processing personal data throughout the European Union.
- The European Digital Services Act (DSA) aims to regulate the activities of digital intermediary service providers, including online platforms. The principle is that anything that is prohibited offline is also prohibited online. It allows for significant

³⁴ <https://www.ofis-france.fr/>

³⁵ <https://www.defenseurdesdroits.fr/whistleblower-a-precise-definition-to-benefit-from-protective-status-696> and https://www.defenseurdesdroits.fr/sites/default/files/2023-07/ddd_guide-lanceurs-alertes_maj2023_20230223.pdf

financial and administrative penalties against platforms spreading health disinformation, but active and visible enforcement is still gradual and depends heavily on cooperation between national and European authorities. The international context, with North American platforms, limits its application,

- Other texts are gradually being implemented: the Digital Markets Act (DMA) and the European AI Act.