An ounce of prevention = a pound of cure

A case for investing in infodemic management

Tina Purnat

Team Lead for Infodemic Management
Unit for High Impact Events Preparedness
Department of Epidemic and Pandemic Preparedness and Prevention
World Health Organization

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EPIDEMIC & PANDEMIC **PREPAREDNESS & PREVENTION**

The infodemic is made up of more than misinformation

Growth of narratives and if sustained, increasing potential for harm

| Questions | Concerns | Information Voids | Misinformation | Disinformation |

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The infodemic is made up of more than misinformation

Health systems have more influence here

Less influence here

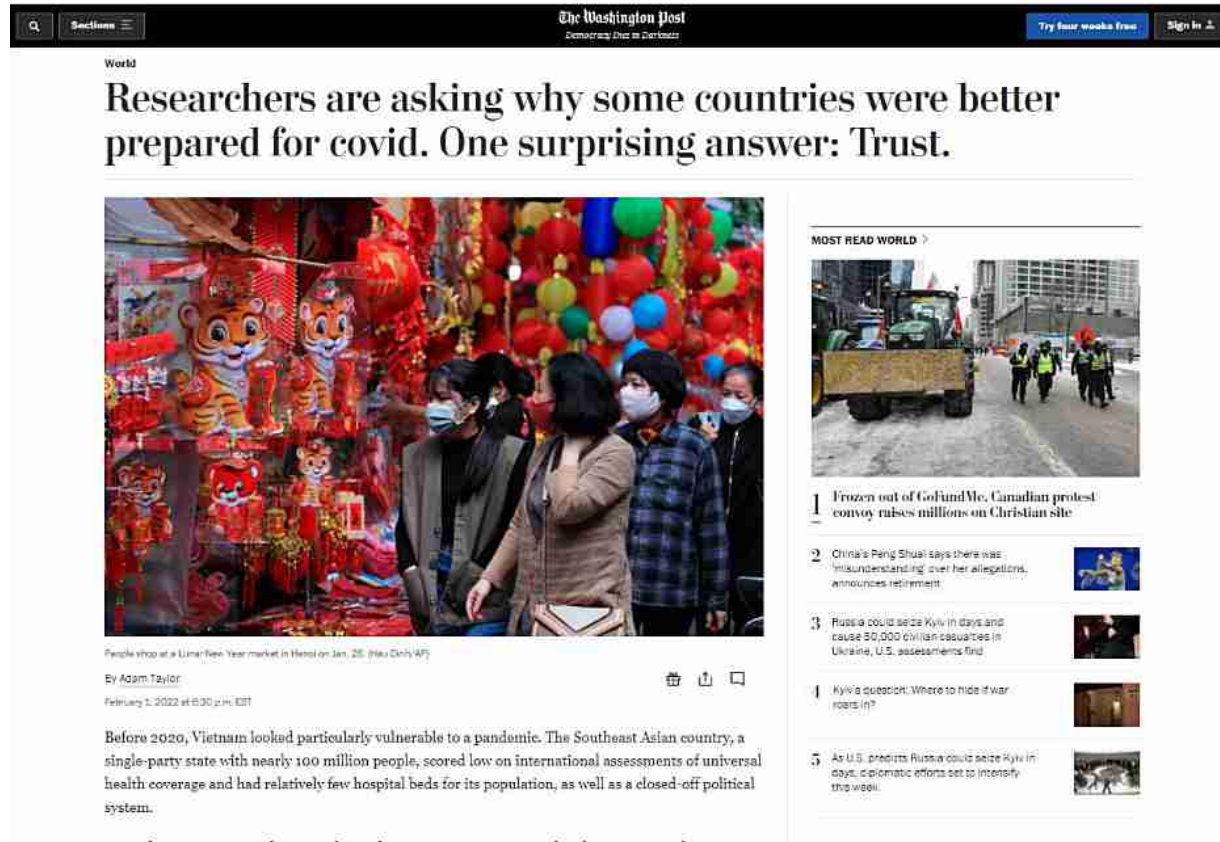*Growth of narratives and if sustained, increasing potential for harm*

| Questions | Concerns | Information Voids | Misinformation | Disinformation |
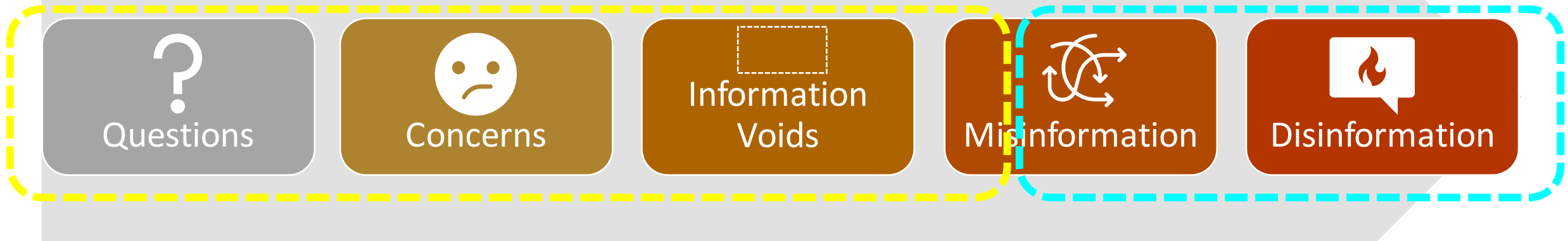
More common, easier to address

Less common, harder to address

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The global trust deficit is associated with poorer COVID-19 health outcomes. Infodemic management can provide rapid insights on how to build trust.

The Washington Post
Democracy Dies in Darkness

World

Researchers are asking why some countries were better prepared for covid. One surprising answer: Trust.

By Adam Taylor
February 1, 2022 at 6:30 p.m. EST

Before 2020, Vietnam looked particularly vulnerable to a pandemic. The Southeast Asian country, a single-party state with nearly 100 million people, scored low on international assessments of universal health coverage and had relatively few hospital beds for its population, as well as a closed-off political system.

MOST READ WORLD >

1. Frozen out of GoFundMe, Canadian protest convoy raises millions on Christian site
2. China's Peng Shuai says there was 'misunderstanding' over her allegations, announces retirement
3. Russia could seize Kyiv in days and cause 50,000 civilian casualties in Ukraine, U.S. assessments find
4. Kyiv's question: Where to hide if war roars in?
5. As U.S. predicts Russia could seize Kyiv in days, diplomatic efforts set to intensify this week

"We found no links between covid outcomes and democracy, populism, government effectiveness, universal health care, pandemic preparedness metrics, economic inequality or trust in science,"...

"**Instead, better outcomes appear to have gone hand in hand with high levels of trust in government and other citizens.**"

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Infodemics can cause harm beyond eroding trust

Domain of impact - harms	Consequence
Physical	• Limited accurate knowledge about available treatments • Misplaced actions
Social	• Victimization and stigma
Economic	• Falling for scams • Panic buying
Political	• Limited trust in officials • Rejection of official guidelines • Disregard of government-led responses
Psychological	• Mental health epidemic, Misplaced trust • Extreme anxiety • Long-term depression

Table 3. Our risk framework of health misinformation based on the evidence.

Skewed investments and concurrent costs of the infodemic

COVID-19 vaccine misinformation and disinformation costs an estimated **$50-$300** million each day

More than **4,000** top brands funded websites promoting COVID-19 misinformation, including vaccine makers, hospitals.

One anti-vaccine misinformation video viewed at least

30 million times on social media

87% of Facebook budget related to identifying and addressing misinformation was dedicated to the US compared to **13%** for the rest of the world

Sources:
- The Johns Hopkins Center for Global Health Security
- In India, Facebook Grapples With an Amplified Version of Its Problems
- OSF Preprints | The COVID States Project #60: COVID-19 vaccine misinformation: From uncertainty to resistance
- Coronavirus Misinformation Tracking Center - NewsGuard (newsguardtech.com)
- An anti-vaccine misinformation video has been viewed at least 30 million times on social media | Media Matters for America

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6

Economic cost of the infodemic

COVID-19 misinformation in Canada **cost at least 2,800 lives and $300 million in hospital expenses over nine months** of the pandemic

- …social media can contribute to the spread of misinformation, but policies to counter such misinformation — such as **requiring labels on inaccurate information** — could help.

- …it's important to **balance tackling misinformation with freedom of expression**.

- …one way to strike a balance would be to **make sure reliable information is more widely available** and to **give people tools to identify misinformation and rhetorical techniques** used in mis-/disinformation.

Fault Lines

Expert Panel on the Socioeconomic Impacts of Science and Health Misinformation

CCA | CAC

Source: Fault Lines: The Expert Panel on the Socioeconomic Impacts of Science and Health Misinformation. **Council of Canadian Academies (CCA)**. January 2023. https://cca-reports.ca/expert-panel-lays-out-costly-consequences-of-misinformation/
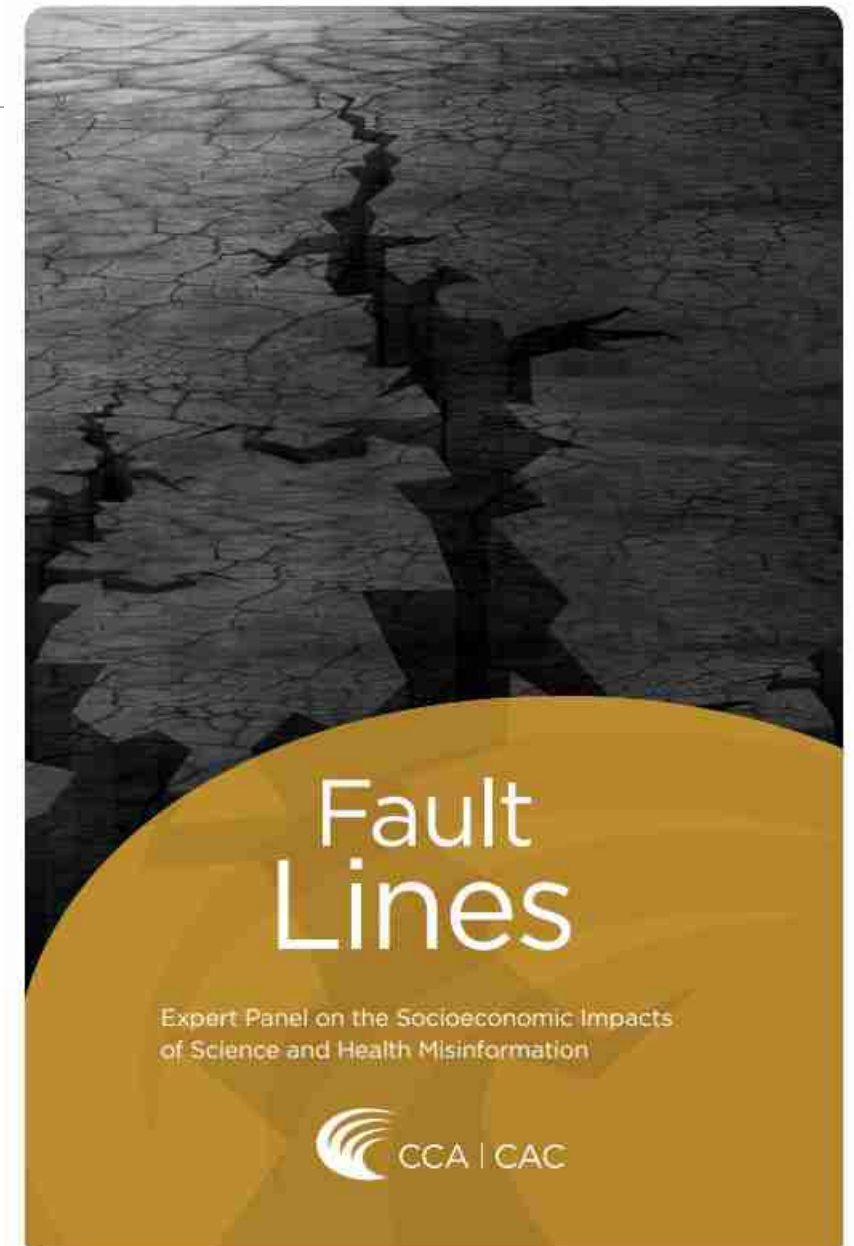
Infodemic insights can detect potentially harmful narratives and suggest solutions to mitigate them
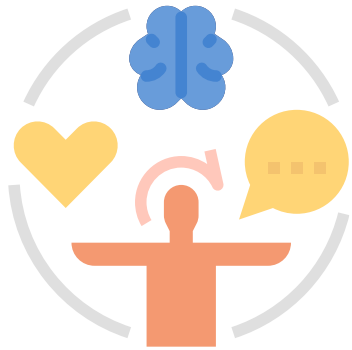
Answer programmatic questions on why there may be a gap between health guidance and behavior
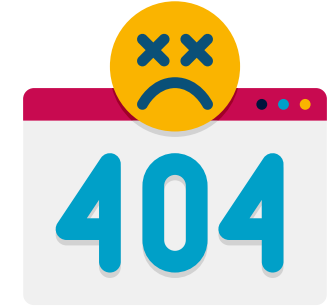
Monitor change in conversations and sentiment in a population

Investigate anecdotal reports that misinformation or concerns are causing vaccine hesitancy

Understand information seeking behaviors of individuals

Identify information voids where misinformation may take root

Infodemic insights can sharpen the focus of public health actions

The challenge: Immunization data shows very low vaccine uptake among pregnant women in Community X. The local health department wants to understand why.

The data: Based on integrated analysis of rumor logs, a local CHW focus group, analysis of social media content about vaccine conversations, Google Trends for questions asked related to vaccines, meeting notes at monthly supportive supervision visit with nurses, and a KAPB survey from two months ago highlights that vaccine safety concerns are top of mind for pregnant women and their families.

Recommended actions: Educate health workers on importance of pregnant women to get vaccinated, provide localized job aids, host a meeting with female community leaders to educate, develop short FAQ addressing top questions, improve online content about vaccine safety on websites geared toward pregnant women.

A major challenge for developing infodemic insights is that many potential data sources for inclusion are not considered

Who is monitoring
or tracking people's questions,
concerns, information voids,
narratives, and circulating
mis- and disinformation?

Who is tracking
health behaviours and
downstream health system effects
related to this topic?

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Risk matrix to derive infodemic-related recommendations for mpox

EXAMPLE

Each key finding is classified by level of risk to public health. A risk matrix assesses potential for impact on seeking and uptake of PHSM, vaccines treatments and diagnostics, underrepresentation of vulnerable groups in data, stigmatisation* of, and the experience of stigma in vulnerable populations, as well as narrative reach and dissemination. The risk level is indicated by colour.

- **High risk narrative** may lead to increased stigmatisation of vulnerable groups, reduced preventative behaviors and healthcare-seeking of recommended treatments and diagnostics. The narrative either has wide reach and is jumping geographies or platforms, or is pervasive particularly among at-risk and vulnerable populations (red colour).
- **Moderate risk narrative** may lead to stigmatisation of vulnerable groups, reduced preventative behaviors and healthcare-seeking of recommended treatments and diagnostics. It has moderate reach, may be crossing communities, platforms and formats, and has therefore has moderate dissemination (orange colour).
- **Low risk** narrative themes are a concern but pose a low risk to reinforcing stigmatisation, uptake of recommended health behaviour and guidance. They have limited reach and dissemination, only circulating in small groups and communities, and on one platform (yellow colour).
- **Positive sentiment** reflects thematic narratives that could decrease stigmatisation, increase uptake of health guidance and healthy behaviour. It may have variable reach and dissemination (green color).

Reach, dissemination, at-risk population, community of focus →	Wide reach, high dissemination, particularly among at-risk and vulnerable populations (e.g., MSM, women, non-binary people)	Moderate reach and dissemination, may be skipping communities, platforms or geographies	Limited reach, limited dissemination
Impact on uptake of PHSM, vaccines, treatments and diagnostics ↓			
May lead to increased stigmatisation and silencing of vulnerable groups, refusal of recommended treatments and diagnostics, reduced healthcare-seeking , or lower adherence to recommended behaviors	**High risk**	**High risk**	**Moderate risk**
Potential to trigger stigmatisation, reduced healthcare-seeking , hesitancy to public health and social measures, vaccination, or pharmaceutical interventions	**Moderate risk**	**Moderate risk**	**Low risk**
Concerning, but low risk to uptake of recommended health behaviors and health guidance	**Low risk**	**Low risk**	**Low risk**
Could increase uptake of health guidance, intent, and enactment of health behaviors.	**Positives sentiment**	**Positive sentiment**	**Positive sentiment**

*Cultural contexts and legal barriers in some countries may contribute to reduced healthcare-seeking behaviour, and even the experience of stigmatisation in health service access and delivery.

Purnat TD et al. Delivering actionable infodemic insights and recommendations for the COVID-19 pandemic response. Weekly Epidemiological Review. Geneva: WHO 2022.

Combating Misinformation as a Core Function of Public Health, NYC health department, https://catalyst.nejm.org/doi/full/10.1056/CAT.22.0198 ; **Establishing infodemic management in Germany: a framework for social listening and integrated analysis to report insights at the national public health institute. T Sonia Boender et al.** https://preprints.jmir.org/preprint/43646; **Finland:** Lohiniva, A. L. et al. (2022). **Social Listening to Enhance Access to Appropriate Pandemic Information Among Culturally Diverse Populations: Case Study From Finland.** JMIR Infodemiology, 2(2), e38343., https://infodemiology.jmir.org/2022/2/e38343/ **Ghana:** Lohiniva, A. L. at al (2022). **Infodemic Management Using Digital Information and Knowledge Cocreation to Address COVID-19 Vaccine Hesitancy: Case Study From Ghana.** JMIR infodemiology, 2(2), e37134.; https://infodemiology.jmir.org/2022/2/e37134/ **Nigeria:**https://1drv.ms/p/s!AtPoc3YQw0ufgqN1C_5DovEQoo3Cnw?e=QDYNA7; **Indonesia:** Poster presented at the November 2022 meeting of WHO's STAG-IH strategic advisory group. https://1drv.ms/u/s!AtPoc3YQw0ufgucMjtDxlTgCEhKD5A?e=h5YWmZ ; Myneni S et al. **Lessons Learned From Interdisciplinary Efforts to Combat COVID-19 Misinformation: Development of Agile Integrative Methods From Behavioral Science, Data Science, and Implementation Science.** JMIR Infodemiology 2023;3:e40156. https://infodemiology.jmir.org/2023/1/e40156

# Infodemic interventions across levels and pressure points 1/2

1 Monitoring and detection of narratives, questions, concerns, and misinformation in the information ecosystem

a. Public health social listening and integrated analysis

2 Science and health communication

a. Rapid content development to address emerging information voids
b. Quality health information materials and resources
c. Science and knowledge translation
d. Debunking and misinformation correction
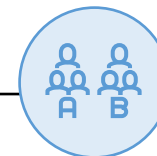
## 3 Education & training to build resilience to misinformation

a. Capacity building to identify and address health misinformation
b. Prebunking
c. Improving self-efficacy to adhere to recommended health behaviors
d. Improving ability to develop a more accurate risk perception, and judge benefits of recommended health behaviors

Infodemic interventions across levels and pressure points 1/2

4 Engagement

a. Individual and community-level engagement
b. Psychological support to individuals and communities
c. Health worker level engagement
d. Social media-based strategies
e. Coalition building and digital engagement
f. Digital design for the user experience of information environment
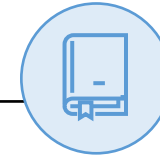
5 Laws, regulations and ethics

a. Cybersecurity laws or cyber-resiliency strategies
b. Public advisory and guidelines with legal mandate/enforcement
c. Legislative ban of misinformation spread or legislation for right to health information
d. Regulation of information and related platforms and ethics
e. Content moderation policies, oversight and implementation
f. Consumer protection laws

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Not all narratives can be effectively addressed by a health authority

6 major COVID-19 vaccine misinformation narrative themes identified from an analysis of 14+ million social media posts in French, Spanish and English from 15 June – 15 September 2020

Topic		Description
	Development, provision and access	Posts related to the ongoing progress and challenges of vaccine development. This also includes posts concerned with the testing (clinical trials) and provision of vaccines as well as public access to them.
	Safety, efficacy and necessity	Posts concerning the safety and efficacy of vaccines, including how they may **not** be safe or effective. Content related to the perceived necessity of vaccines also falls under this topic.
	Political and economic motives	Posts related to the political and economic motives of actors (key figures, governments, institutions, corporations, etc.) involved with vaccines and their development.
	Conspiracy theory	Posts containing well-established or novel conspiracy theories involving vaccines.
	Liberty and freedom	Posts pertaining to concerns about how vaccines may affect civil liberties and personal freedom.
	Morality and religion	Posts containing moral and religious concerns around vaccines, such as their composition and the way they are tested.

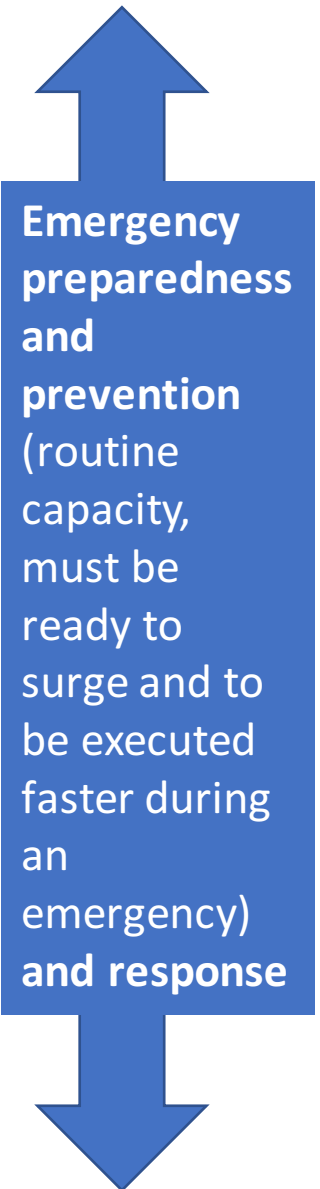## Not all narratives can be effectively addressed by a health authority

6 major COVID-19 vaccine misinformation narrative themes identified from an analysis of 14+ million social media posts in French, Spanish and English from 15 June – 15 September 2020

Who is best placed to address these themes even if they damage public health outcomes?

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Investing in infodemic management requires a two-pronged approach

Emergency preparedness and prevention (routine capacity, must be ready to surge and to be executed faster during an emergency) **and response**

Acting within the health system broadly

- ❑ Capacity for conducting social listening/ infodemic monitoring
- ❑ Conduct integrated analysis of diverse data sources
- ❑ Conduct risk assessment and provide timely recommendations
- ❑ Rapidly published and disseminated data and health information
- ❑ Monitor popular reaction to health guidance
- ❑ Address points of confusion
- ❑ Translate science
- ❑ Involve communities to cocreate appropriate messages and solutions
- ❑ Empower health workers to address health misinformation and questions and concerns of patients

Partnering outside the health system

- ❑ Establish partnerships with factcheckers and media organizations to promote factchecking misinformation and health claims
- ❑ Collaborate with technology platforms to promote content moderation and promotion of credible and accurate health information
- ❑ Expand networks with community organizations, academic institutions, faith communities, world of work, professional associations, other communities, and the private sector to disseminate health information and address misinformation
- ❑ Promote ways in which community members can factcheck misinformation, and promote media and information literacy
- ❑ Work with trusted messengers in trusted spaces (where people work, pray, play, live, study and gather)
- ❑ Digital strategy to "set health information free" through unstructured online networks
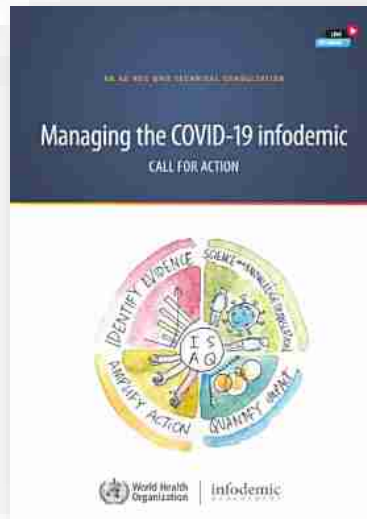
Developing infodemic management

Mandate

WHA74.7 Strengthening WHO preparedness for and response to health emergencies

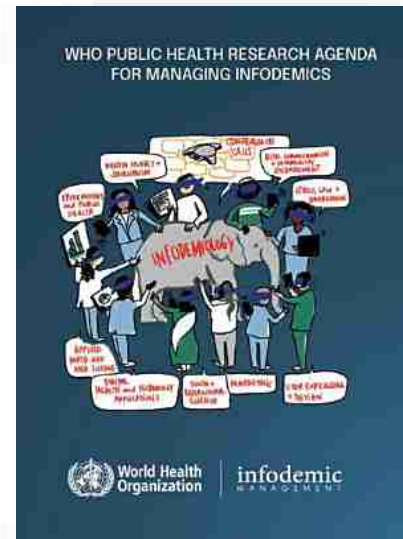**132 signatories of "cross-regional statement on infodemic in context of COVID-19" to UN Secretary General**
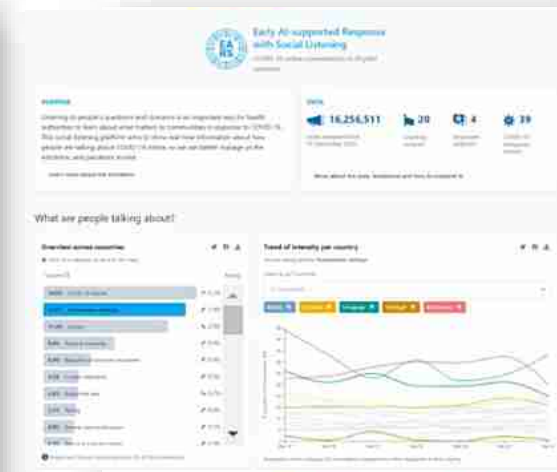
Programmatic response

1 Framework, strategy and action

50 global actions for whole-of-society

2 The science

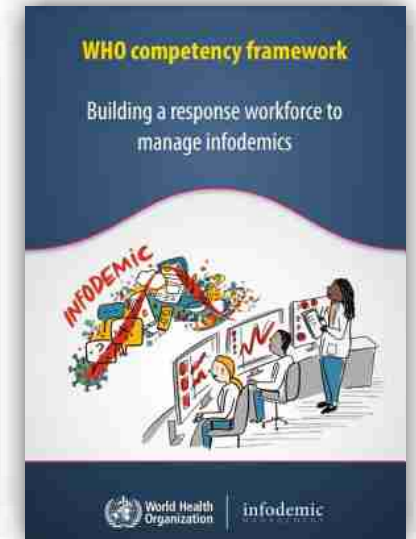WHO PUBLIC HEALTH RESEARCH AGENDA FOR MANAGING INFODEMICS

Linking research & practice

3 Country tools and partnerships

Understand community concerns, questions, narratives, and build trust in interventions

4 Professionalization

WHO competency framework
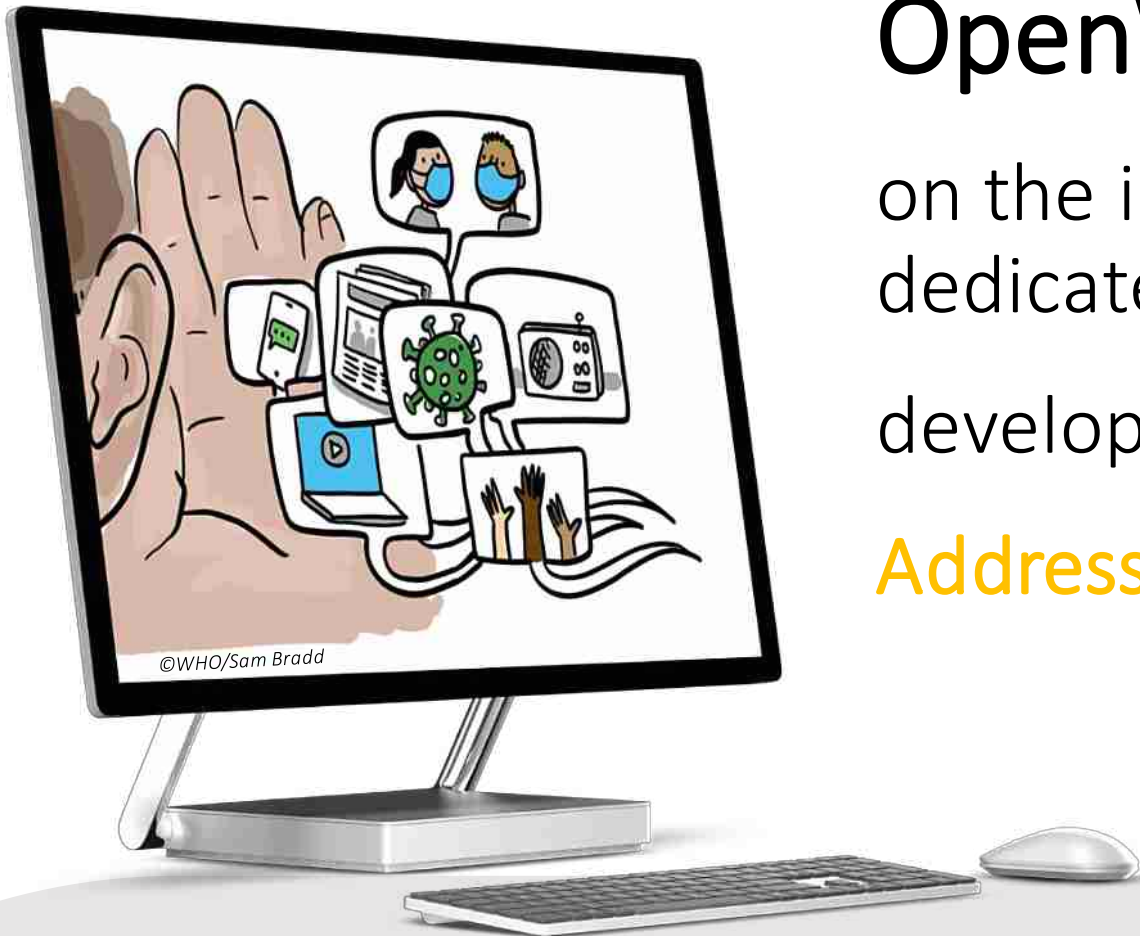Building a response workforce to manage infodemics

1300+ infodemic managers trained

NEW

OpenWHO courses

on the infodemic management channel dedicated to how to

develop an infodemic insights report,

Addressing health misinformation, etc

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In the mean time, subscribe to the WHO infodemic management newsflash

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https://bit.ly/flashsubscribe

Thank you!

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Tina D Purnat
purnatt@who.int
https://www.linkedin.com/in/tinadpurnat/

Key themes (by social listening taxonomy) EXAMPLE

Emerging

THE CAUSE & ORIGIN – NAME CHANGE FROM MONKEYPOX TO MPOX GENERATES A MIXED RECEPTION

WHO's decision to rename the disease from monkeypox to mpox emerged as a key driver of conversation over the monitoring period. Pockets of conversation online considered the name change to be racist given perceptions it assumes that the public makes an implicit connection between a monkey and an individual's race. Meanwhile others interpreted the name change as a move to disassociate monkeys from being the source of the virus. Parallel conversations revealed confusion on why 'monkeypox' was deemed racist if the virus originated from monkeys. Some conspiracy theories suggested mpox originates from mRNA COVID-19 vaccines. (Narratives observed in USA, UK, Philippines and English-language).

Persistent

INTERVENTIONS – ENDURING PUBLIC DISTRUST AND CONFUSION AROUND PUBLIC HEALTH AUTHORITIES' RESPONSE TO MPOX

Public mistrust, including questions about when and to whom mpox vaccines will be delivered were prominent in discussions over the past two weeks. In Mexico and Colombia, users questioned their governments' response strategies towards addressing mpox, while some alleged that members of the LGBTQI+ community were specifically denied access to vaccines. In response to news reports that 50,000 vaccines would be sent to DRC, Ghana and Nigeria to address healthcare workers and the most vulnerable, there were polarized discussions on the need to vaccinate HCWs. (Narratives observed in the USA, Mexico, Colombia)

Persistent

THE ILLNESS & TRANSMISSION – INFORMATION VOID AND QUESTIONS AROUND MPOX IN WOMEN

Data from a new study in Spain had conclusions similar to studies discussed in the previous reporting period which described a lack of access to diagnosis and treatment among cis-, non-binary, and trans women. Users expressed questions about whether sexual contact is the only mode of transmission for women. Users were searching for additional information about transmission among women. Some male online users suggested that women should reduce sexual contact to prevent mpox transmission. Female users responded by pointing to recent data reportedly showing that only 65% of infected women got mpox from sexual contact. (Narratives observed in English and Spanish language conversation).

Recommendations for action

- **Monitor the development** of conversations around this topic to pre-emptively identify any emerging misinformation or more confusion around the origin of the virus; use these insights to inform pre-bunking or timely debunking.
- **Review and update talking points** to address these specific questions or associated concerns on the name change; distribute through media or factchecking networks.
- **Continue to update metadata and all web/social content** that mention monkeypox and re-label to mpox; ensure that IMST staff use mpox for consistency in language.
- **Continue to mark all webpages** that have been updated with the new name and set up new URL redirect from the old monkeypox URL to the new URL.

- **Clarify how policy decisions were made** regarding how limited mpox vaccine supply would be distributed and who would be prioritized for vaccination.
- **Develop information materials (e.g. talking points)** explaining the rationale behind the decision to include HCW as a priority group for vaccination.
- **Conduct rapid online community assessments** to better characterize these concerns especially around vaccine delivery programs in LMICs and investigate this in the upcoming WHO deep dive report on mpox and HCWs.
- **Use these insights** to update information packages for at-risk communities, including HCW and work with organizations serving LGBTQI+ communities to address specific concerns questions.

- **Train, prepare, and work with HCWs** to address offline or online questions about mpox transmission among women.
- **Develop key messages** addressing the concerns or questions of women to be used for talking points and information materials for HCWs.
- **Review and update existing health guidance, talking points, and FAQs** with information addressing concerns of women, such as risk of mpox transmission and prevention in women.

*Level of risk to public health (impact on uptake of PHSM, vaccines, treatments, diagnostics) as determined by type of narrative, reach, dissemination, affected communities: **high**; **moderate**; **low**; **positive sentiment***

Dimensions of trust in emergency preparedness and prevention
Each of these can be detected through social listening and addressed through infodemic insights and recommendations.

- Trust in health data and statistics
- Trust in data governance and privacy

- Trust in government

- Trust in science
- Trust in safety, manufacture, certification and distribution of medicines and devices

Collaborative surveillance

Community protection

Emergency coordination

Access to countermeasures

Clinical care

- Interpersonal trust
- Trust in others in community
- Trust in PHSM, treatments, diagnostics and vaccines
- Trust in emergency responders
- Trust in health information

- Trust in the health system
- Trust in health care workers
- Trust in clinical care guidance

Potential data sources on people's information behaviors…

Health System Communications	Digital environment & user behaviour	Society & community
Hotline call log	Website analytics	Media monitoring
Email/chat queries	Search trends	Feedback from community events
Press inquiries	Social media monitoring	Opinion polls
Patient feedback surveys	Discussion forums	Mobility data and reports
Other formal feedback mechanisms	Other digital data sources	

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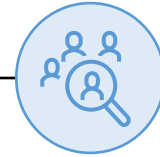
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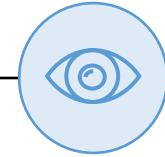
... potential data sources from the health system
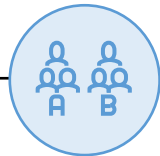
Health System Data
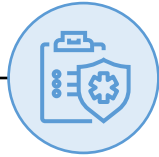
Medicines & medical device regulatory data
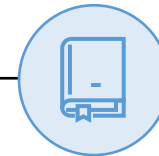
Socio-behavioural studies

Behavioural risk factor surveillance datasets

Population based surveys

Peer-reviewed research

Grey literature

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