Comprehensive Training

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Organized by GAVI, WHO, UNICEF and US CDC

Toolbox across levels of interventions: Infodemic management interventions to address the infodemic and infodemic risk

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Learning objectives

Participants will…

- Understand what practical interventions to address infodemic management challenges can be implemented at national health system and community level
- Identify how to adapt models like Journey to Immunization and RCAs to examine infodemic-related challenges and develop solutions

Fitting transdisciplinary infodemic insights into health authority processes

Phase of epi curve	PREPARE AND MONITOR		DETECT AND INTERVENE		STRENGTHEN
	1	2	3	4	5

Social listening and integrated analysis to understand the public's questions, concerns, information voids, narratives and misinformation

Delivering high quality health information and programming

Intervening through design, implementation and evaluation

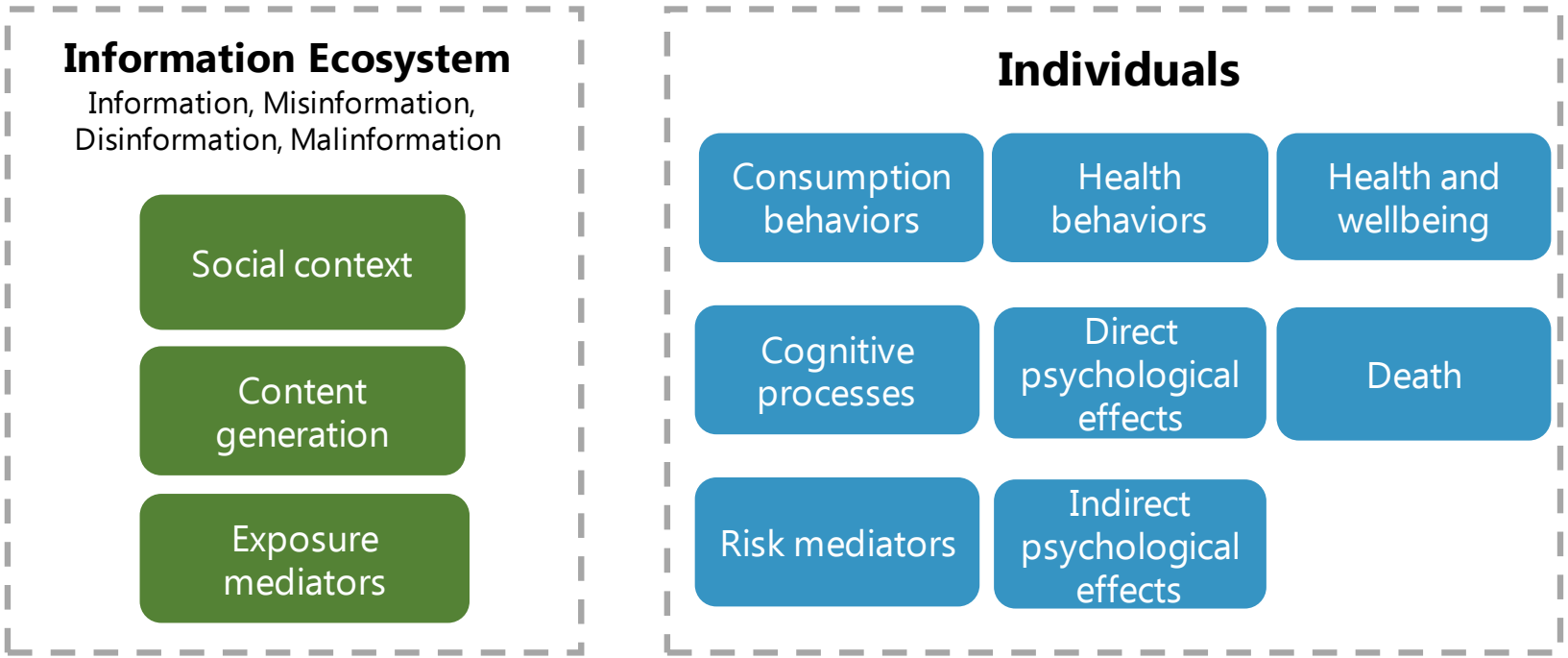
Promoting and supporting resilience, healthy behaviors and community engagement

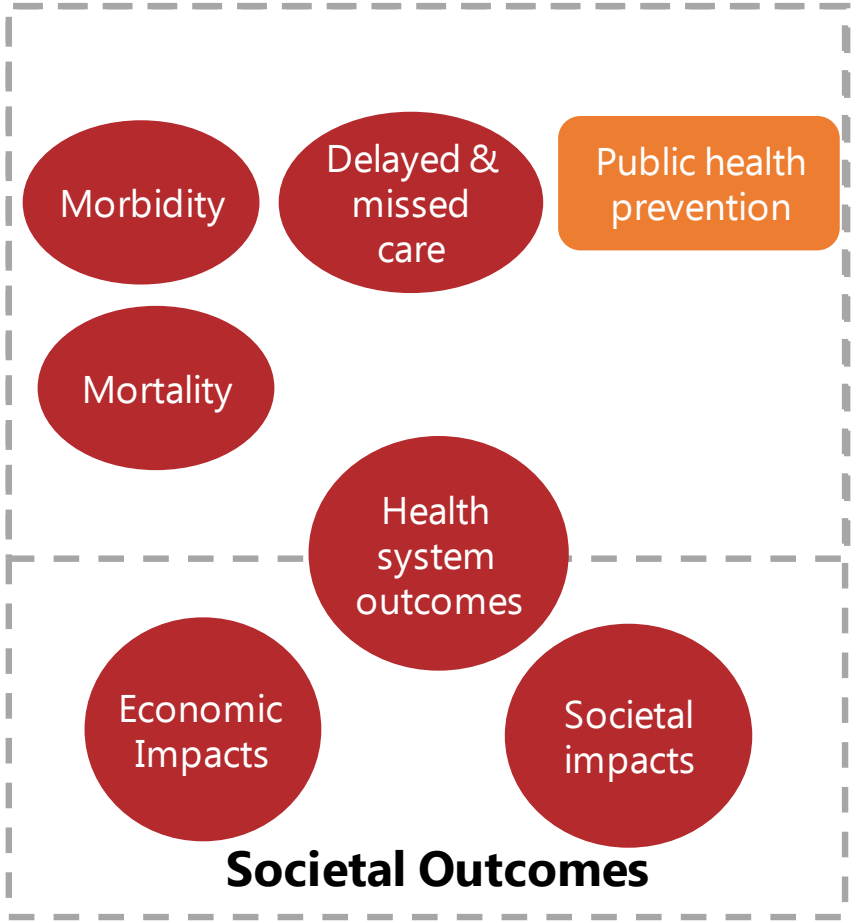
Strengthening preparedness, planning, policy and systems

Ongoing monitoring, real-time insights and strategy refinement

Purnat, TD. Building systems for respond to infodemics and build resilience to misinformation. https://www.linkedin.com/pulse/building-systems-respond-infodemics-build-resilience-tina-d-purnat/
Purnat, TD. Infodemic management as a function of health emergency preparedness and community resilience. Speech at the SE European Health Network workshop. https://www.linkedin.com/pulse/infodemic-management-function-health-emergency-tina-d-purnat/

Intervening on the infodemic is complicated because the phenomenon is complex

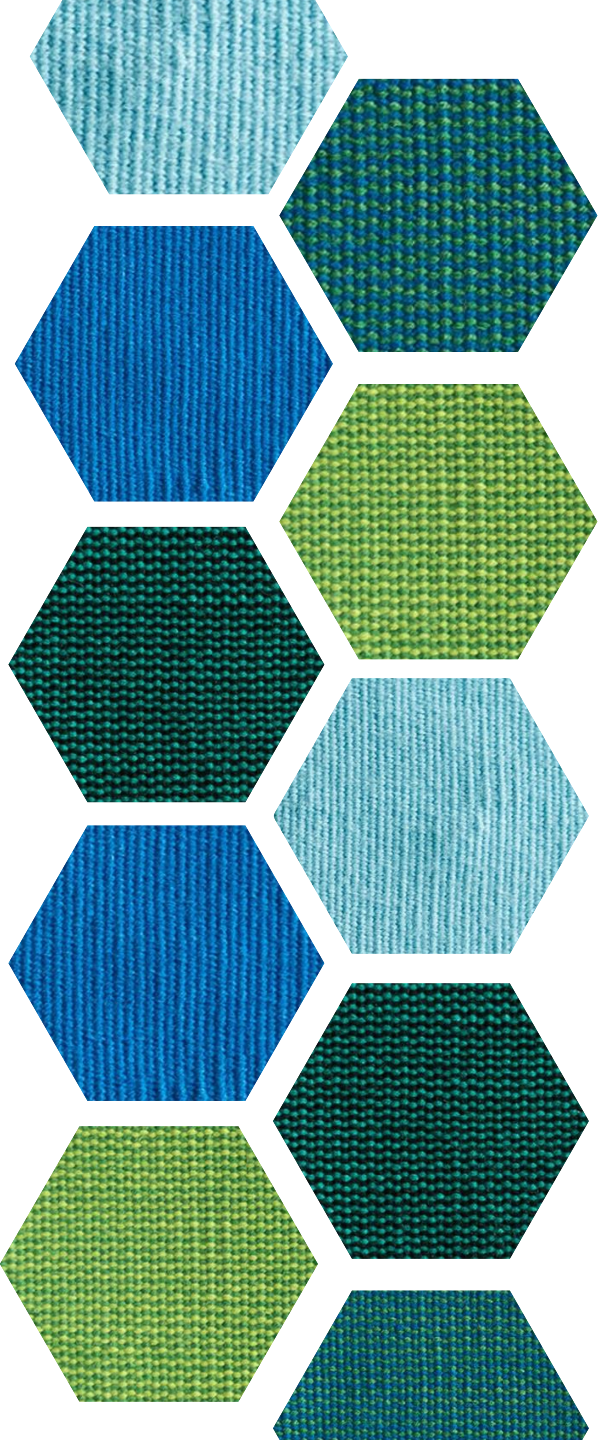




The "health system" (red boxes) is the target area that other disciplines studying the infodemic often miss.

Questions to consider

- Where are the biggest "pain points" for your target population?
- What part of the infodemic concept map would you want to influence?
- What area does the health authority have the most influence over?
- What menu of interventions is available to try?
- How to measure what works or doesn't?



Practical infodemic management actions you can take to support health programmes, preparedness and prevention of health emergencies

Conduct an infodemic landscape analysis

Conduct a rapid SWOT analysis (Strengths – Weaknesses- Opportunities –Threats) across the following:

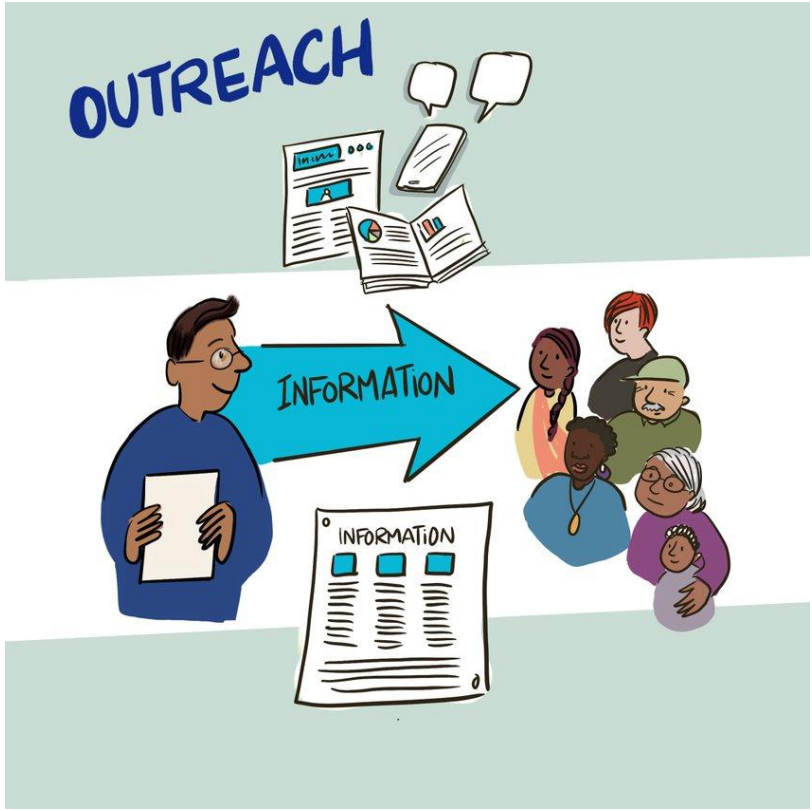
- Programme objectives
- Current staff and programme capacity to do infodemic management
- Data sources available
- Established partnerships
- Existence of supportive policies
- Current programme or response structure
- Current structural processes and communications flows that affect ability to quickly detect and respond to infodemics
- Have the gaps in the emergency preparedness and response or in health programme been identified – what are the questions and problems that the programme manager is trying to solve that the infodemic may be contributing to

5 National-Level Actions to Manage Infodemics

1. **Identify information voids.**
   - Conduct social listening and conduct integrated analysis with other data sources to understand people's questions, concerns, perceptions, information voids, narrative and circulating mis- and disinformation.
   - Parse out information seeking patterns from general conversation and consider utilizing user journeys to understand how people seek and find health information and identify where there are weaknesses in information environment.

5 National-Level Actions to Manage Infodemics - cont

2. **Improve the quality and quantity of health information available.**
   - Audit authoritative health information channels for freshness, quality, clarity, and acceptability of information content.
   - Develop prepared responses to most common questions and misinformation that can be repurposed for phone scripts, web content, print, audio, or video formats. Share widely through all levels of health systems.
   - If there is no editorial or content strategy anticipating infodemic risks, build one.



5 National-Level Actions to Manage Infodemics - cont

3. **Tailor content and approaches to most vulnerable populations.**
   - Some communities may have unique access and digital literacy challenges, and ways of seeking health information and information voids will differ.
   - Create a segmented infodemic strategy for each vulnerable group.

5 National-Level Actions to Manage Infodemics - cont

4. **Link online efforts to offline behaviors.** Define indicators that assess individual factors that are reasonably likely to be impacted by infodemic management strategies such as:
   - Knowledge
   - Awareness
   - Perception
   - Ability to discern accurate from inaccurate health information
   - Ability to address misinformation in their families and communities
   - Knowing where to find credible health information
   - Trust in health information

5 National-Level Actions to Manage Infodemics

5. **Connect to networks for implementing infodemic strategies.**
   - This includes media, fact checking organizations, medical associations, social media networks that are used by your target population
   - Share insights *and* tools/strategies/content with these networks and develop a feedback loop to collect data and reactions from them too.

3 Health Facility-Level Actions to Manage Infodemics

1. **Make high quality health information content more widely available in more formats.** Could include:
   - Using "waiting space" areas as opportunities for education with flyers, posters, pamphlets, videos, health educators/mobilizers
   - Provide QR codes to more information as text/video/image
   - Provide visual job aids that can also be shared during a conversation with a health worker

3 Health Facility-Level Actions to Manage Infodemics - cont

2. **Encourage patient conversations, including asynchronous ones through digital means.**
   Could include:
   - Using a chatbot to serve content quickly on websites, social media, and messaging platforms
   - Sharing WhatsApp tip or helpline
   - Promoting Facebook or Instagram page for Q&A
   - Promote radio or livestream call-ins where people can ask questions of health professionals

3 Health Facility-Level Actions to Manage Infodemics - cont

3. **Train health workers on addressing patient questions, concerns and misinformation.**
   Use concepts from motivational interviewing to elicit effective vaccine conversations.
   Support these conversations by:
   - Developing job aids on conversation models and prepared responses
   - Providing FAQs on most common questions/concerns
   - Offering support material rebutting common misinformation

3 Community-Level Actions to Manage Infodemics

1. **Coordinate how trusted messengers and institutions share health information and equip them with fresh content.** This could include:
   - WhatsApp group or email list sharing latest content and key messages
   - Commit to reshare and remix social media content from one another
   - Provide social listening and infodemic insights early with companion strategies and content to address emerging narratives or misinformation

© WHO/Sam Bradd

3 Community-Level Actions to Manage Infodemics - cont

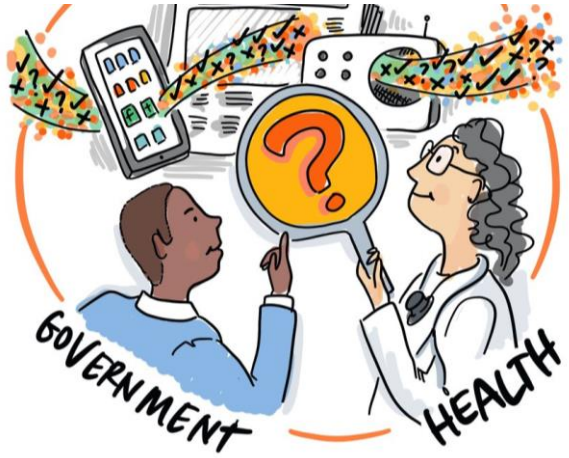
2. **Identify health experts and professionals who can speak to community groups online and offline.** This could include:

- Establishing a "speakers bureau" of health professionals who can address different vaccine topics for different audiences (e.g. speak specific languages)
- Providing experts with media training to talk to journalists effectively
- Equipping with key messages and basic presentation content on vaccine topics
- Supporting "digital native" health workers in using social media to address questions, concerns and misinformation

3 Community-Level Actions to Manage Infodemics - cont

3. **Create a "rapid response" plan with health system and immunization stakeholders on what to do and how to communicate in a crisis.** This could include:

- Identifying different types of infodemic risk, what types of events would fit into low, medium or high threat categories, and what actions stakeholders will take in event of a crisis
- Developing vaccine-related event (VRE) plans with stronger informed monitoring and response components
- Agreeing ahead of time with other authoritative health voices on how to push back against damaging narratives that threaten trust in health systems (e.g. statement issued by the national medical association)



How to operationalize infodemic management-related data collection, synthesis and response using existing tools for immunization and human-centered diagnostics and design approaches

They can

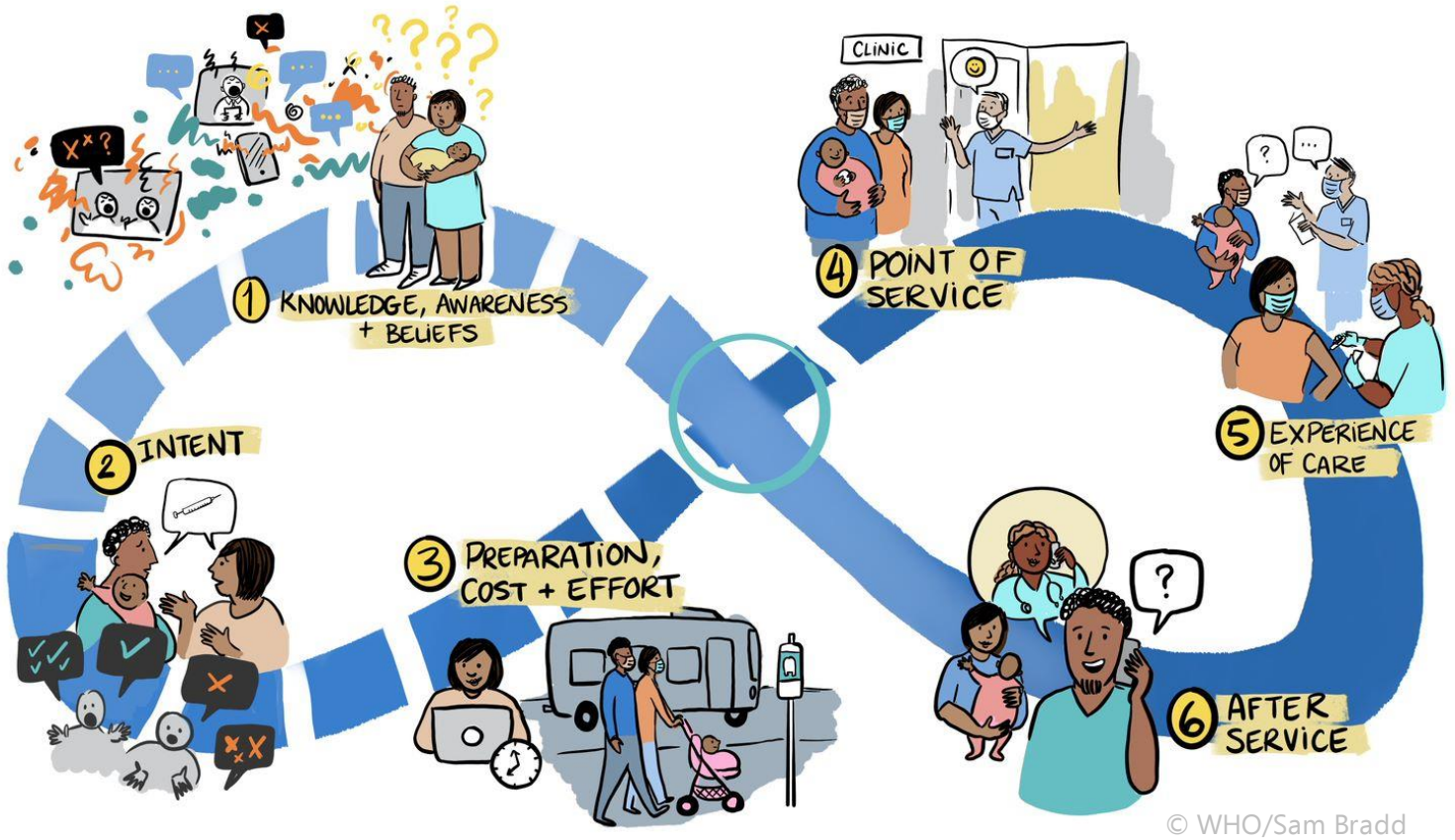
… be used for any health programme or for an emergency

and

… be scaled to different operating environments

Adapting Existing Socio-behavioral Insights Tools for Infodemic Strategies

- The Journey to Immunization includes domains impacted by the infodemic on all stages of the journey.
- Wherever information is received, sought, exchanged can be places along the journey where the infodemic may impact perceptions and behavior.

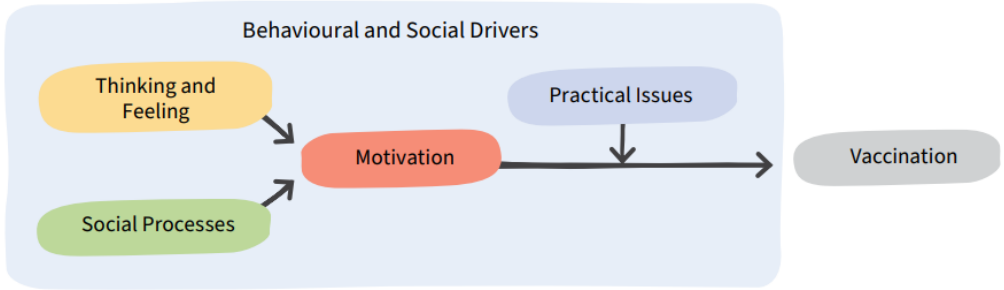


Adapting Existing Sociobehavioral Insights Tools for Infodemic Strategies

- On the Journey to Immunization, consider:
  - How do people talk about vaccines compared to how they signal about vaccines online and offline? Before and after vaccination?
  - What kinds of vaccine-related information seems to feel overwhelming to people? What kind of information are they seeking and not getting enough of?
  - What role does the media play in amplifying or channeling vaccine concerns and misinformation? What can be done to address this?
  - How are health workers affected by the infodemic and how does it affect their relationship to their patients?
  - Where is there silence? Which perspectives or reflections each step of the journey are you missing?

Adapting Existing Sociobehavioral Insights Tools for Infodemic Strategies

HCD-TIP includes domains that are impacted by the infodemic. When developing an end user persona for the "Diagnose" phase, you can develop answers to the following questions for each of the BeSD domains using Infodemic insights:



- **Thinking and Feeling**
  - What kind of exposure to the infodemic does this person have?
  - What are they seeing that might worry them? How might they react to too much information, concerns, or misinformation online or offline?

https://apps.who.int/iris/bitstream/handle/10665/354457/9789240049130-eng.pdf?sequence=1&isAllowed=y

Adapting Existing Sociobehavioral Insights Tools for Infodemic Strategies

- **Social Processes**
  - What kind of relationships and networks is this person part of, especially online?
  - What kind of attitudes or norms are perpetuated online that this person is exposed to?
  - What sources of information do they trust? What online spaces do they trust?
  - How does this person interact with health voices online?
- **Motivation**
  - What are this person's needs and wants and how are they expressed online?
  - What would they be exposed to online that would motivate or demotivate them from seeking vaccines?

https://apps.who.int/iris/bitstream/handle/10665/354457/9789240049130-eng.pdf?sequence=1&isAllowed=y

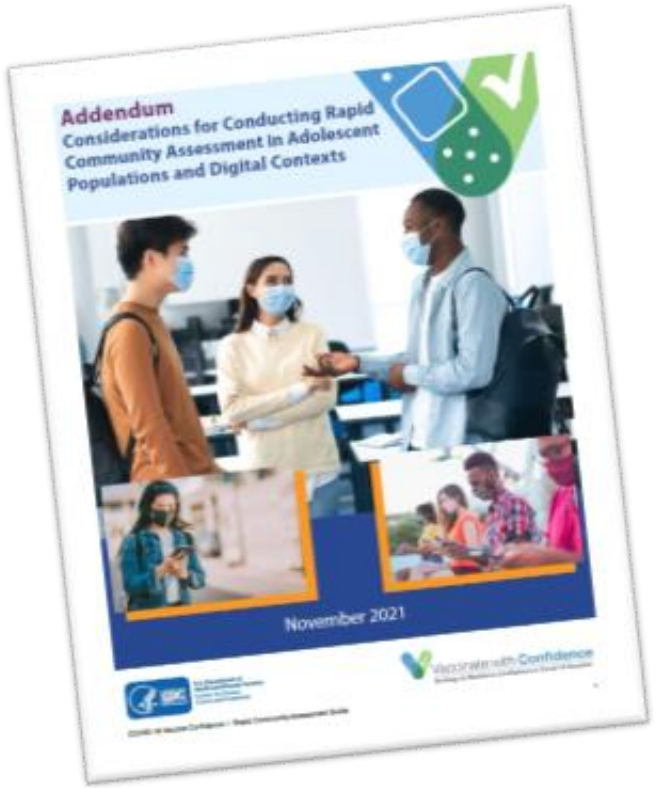
Adapting Existing Sociobehavioral Insights Tools for Infodemic Strategies

- **Practical Issues**
  - What complaints or feedback does this person have about health service delivery, especially online?
  - What kind of reviews/ratings are people leaving on health service social media or geolocation pages?
  - What frustrations does this person voice about access barriers to services?
  - What tech and digital barriers may affect this person's ability to get health information or get vaccinated?

https://apps.who.int/iris/bitstream/handle/10665/354457/9789240049130-eng.pdf?sequence=1&isAllowed=y

Adapting Existing Sociobehavioral Insights Tools for Infodemic Strategies

- Rapid Community Assessment tools also include infodemic components. The RCA uses the Journey to Immunization and BeSD to inform data collection tools and approaches.
- There are social listening and integrated analysis templates available that can be used for rudimentary insights generation.
- There is a special addendum specific to adolescents and digital spaces, recognizing that novel data collection and analytic methods are needed to understand online spaces that public health practitioners may not have direct access to.



https://www.cdc.gov/vaccines/covid-19/vaccinate-with-confidence/rca-guide/index.html

Resources

Guidance

- WHO Infodemic health topic page
- First Draft vaccines and misinformation resources
- UNICEF vaccine misinformation field guide
- US CDC addressing vaccine misinformation page

Readings/Videos

- Infodemic Signal Detection During the COVID-19 Pandemic: Development of a Methodology for Identifying Potential Information Voids in Online Conversations
- 4th WHO Infodemic Management Conference, May 2022 – Advances in Social Listening for Public Health
- Subscribe to WHO Infodemic Management Newsflash
- Sergio Cecchini - Responding to the infodemic through Africa Infodemic Response Alliance - YouTube

Tools

- Vaccination Demand Observatory
- EARS

Resources (not exhaustive, so do your own research):

Listening and analysis platforms

- Social media, Web, Media
  - Free: Google Analytics, Google Trends, Wikimedia Statistics dashboard, Hootsuite, Sprout Social, Mention, SocioBoard, TweetDeck, BuzzSumo, SocialMention, TweetReach, Lithium, Google News
  - Proprietary or limited access: Crowdtangle, Sprinklr, Pulsar Platform, TalkWalker, SocialBakers, Snaplytics, Newswhip, Meltwater, Cision, Brand24, Keyhole
  - UN family: WHO EARS, UNICEF Infodemic Observatory, UN Global Pulse
- Health System
  - National health information system, MICS, DHIS, other health indicator data sources, WHO, UN, multilateral organization global indicator databases, national statistics office, National Institute of Public Health/MoH databases, public health data research collaborations with academic or non-profit institutions
- Community - online
  - Nextdoor.com, Reddit
- Community – offline
  - Rumor tracking report from IFRC, U-Report from UNICEF, hotlines, marketing consumer insights, Rapid Community Assessments from US CDC

Research methods and data collection tools

- Research approaches: Betterevaluation.org, WHO Europe COSMO tool (https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/publications-and-technical-guidance/risk-communication-and-community-engagement/who-tool-for-behavioural-insights-on-covid-19)
- Collection: Amazon Mechanical Turk, online surveys, focus groups, key informant interviews, panels, https://www.wikirumours.org/
- See UN Global Pulse for assistance to UN country teams with Radio Listening using AI speech-to-text, for social listening, and for online survey design/development including A/B testing

Data analysis and visualization tools

- SocialMention, Sentiment Analyzer, Tableau, Plotly, DataWrapper

Information and data sources

- Ask colleagues for data and information, and use Google Scholar and eLibrary search to find information and data about the country and topic of your interest.
- What open data sources are available in your country?
- Some examples:
  - https://ccp.jhu.edu/kap-covid/
  - https://www.statista.com/statistics/381455/most-trusted-sources-of-news-and-info-worldwide/
  - https://bidciviclytics.citibeats.com/
  - https://data.oecd.org/gga/trust-in-government.htm
  - https://unstats.un.org/sdgs/indicators/database/

Learning resources

- https://www.who.int/docs/default-source/epi-win/presentations-of-all-speeches/webinar-16-tz-mediameasurement-8-april-2020.pdf?sfvrsn=5af42396_2
- https://www.youtube.com/watch?v=AN_hvrH-54w
- https://buffer.com/library/social-listening/
- https://www.dreamgrow.com/69-free-social-media-monitoring-tools/
- https://www.nngroup.com/articles/information-seeking-behavior-changes/ - How Information-Seeking Behavior Has Changed in 22 Years. The internet is increasingly used to gain knowledge and understanding of a topic. This knowledge is often acquired accidentally, as a byproduct of browsing. Critical internet use is becoming social.
- https://www.who.int/publications/m/item/artificial-intelligence-and-social-listening-to-inform-policy
- https://www.who.int/about/communications/relevant/listening
- https://www.sciencedirect.com/topics/computer-science/sentiment-analysis
- https://www.coursera.org/learn/social-media-data-analytics
- https://internews.org/sites/default/files/2019-07/Rumor_Tracking_Mods_3_How-to-Guide.pdf
- https://www.coursera.org/learn/importance-of-listening
- https://agora.unicef.org/course/info.php?id=23390

Definitions

- An **infodemic** is an overflow of information of varying quality that surges across digital and physical environments during an acute public health event and makes it difficult for people to find information to better protect themselves and their communities. (Calleja et al. 2021).

- **Infodemic management** is a data and evidence-driven, human-centered practice that strengthens public health systems to support behavior change, even during health emergencies.

- **We're not just fighting an epidemic; we're fighting an *infodemic*.**

Calleja N, et al. A Public Health Research Agenda for Managing Infodemics: Methods and Results of the First WHO Infodemiology Conference. JMIR Infodemiology. 2021 Sep 15;1(1):e30979. doi: 10.2196/30979. PMID: 34604708; PMCID: PMC8448461.

Extra slides

Infodemic managers…

Infodemic managers "dot connect" between health programs, emergency response structures and risk communication and community engagement functions to ensure they all have the insights they need.

Sidenote: do not underestimate how fast the information ecosystem is changing with our society!

(and public health and health system need to catch up)

During 2010s, ad-driven content and personalized newsfeeds have changed everything

2021 and near future!

Technology

Amazon seeks U.S. approval to deploy 4,500 additional satellites for internet project

Why you should care about Facebook's big push into the metaverse

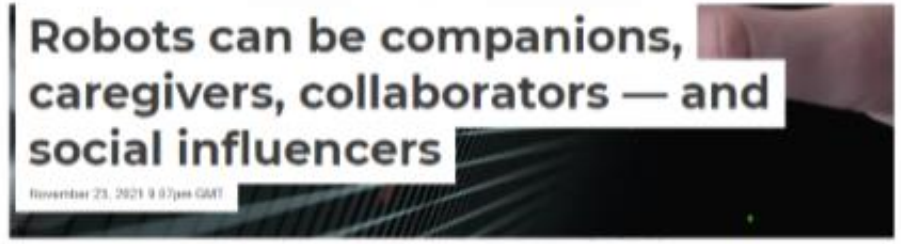
The futuristic tech Mark Zuckerberg is investing billions in could remake the internet.

By Shirin Ghaffary | Nov 24, 2021, 3:15pm EST

Epic Games believes the Internet is broken. This is their blueprint to fix it.

Epic CEO Tim Sweeney and other executives detail their plan for the metaverse and how it differs from Facebook's vision

Robots can be companions, caregivers, collaborators — and social influencers



Robot and artificial intelligence are poised to increase their influences within our every day lives. (Shutterstock)

In the mid-1990s, there was research going on at Stanford University that would change the way we think about computers. The Media Equation experiments were simple: participants were asked to interact with a computer that acted socially for a few minutes after which, they were asked to give feedback about the interaction.

Truths for building interventions for the infodemic, reaching one person at a time (2/2)

Be systematic and integrative

- Be systematic in thinking from listening and integrated analysis --> programmatic/communications changes --> intervention development; models can help do this
- Embrace the iterative thinking process: we test, we learn, and we adjust thanks to data collection and integrated analysis

Do focus on health behavior you want to see…

- Focus on the ***behavior*** you want someone to do
- Don't assume that because someone is not doing something it is because they are "not motivated" or they do "not understand"
- Intention only ***sometimes*** translates to action
- Context matters!

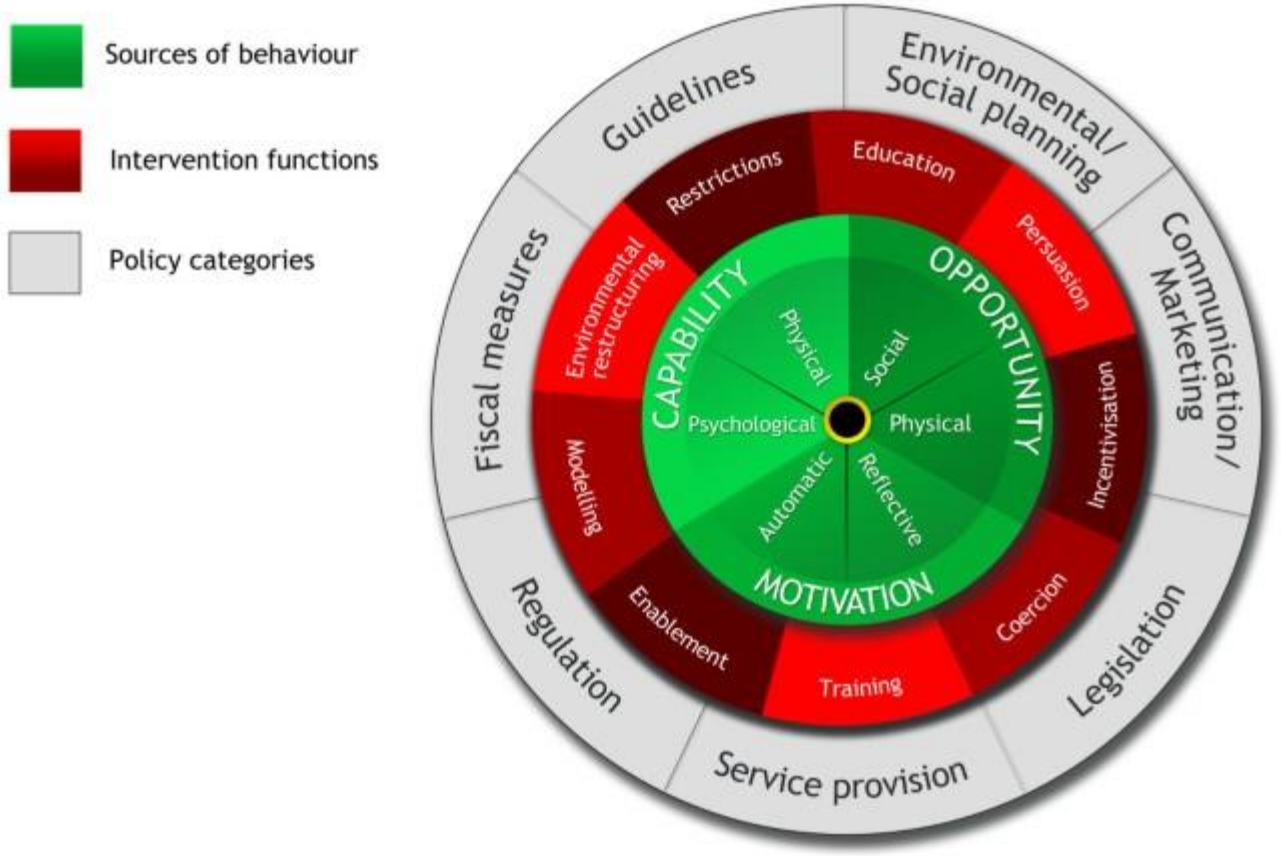
… but the individual is in the eye of the infodemic

- We need to think about how the information ecosystem impacts individuals, not only communities.
- Yes, individuals are influenced by social norms, but individuals are first moved by themselves and they always have multiple social identities and connections into multiple communities
- We often focus on behaviors of the general public and communities but we forget to observe our own public health system's actions and behaviors that can be missing the point and reduce any chance to change final target behaviors

Truths for building interventions for the infodemic, reaching one person at a time (2/2)

The socio-ecological environment in which we work is changing rapidly	▪ The information ecosystem is shifting the pre-established models/paradigms, and fast · infodemic management allows us to think outside of the box in an organized and holistic manner ▪ The science of "what works" in infodemic management is nascent and you will need to borrow from other fields and test out new ideas
We need to work and intervene faster, even outside of emergencies	▪ This is because the everyday life outside acute emergencies shapes the roots of the trust that will be essential when an emergency comes. ▪ In an emergency, the human brain switches to "automatic protection mode" that is tailored by past habits and knowledge.
Interventions therefore need to be carefully designed and evaluated	▪ Be comfortable with the idea that one intervention will not likely dramatically change behavior or fix the infodemic --> **"How do you make an elephant do what you want it to do and willingly?"** ▪ Be comfortable with the idea that you will never have enough information of high quality to take perfect actions or build splendid interventions (especially in an emergency)—just learn, adjust and move on ▪ ***Watch out*** for unintended consequences of actions and interventions, short and long term, and beyond the health system

Taxonomy of behavioral interventions



- Behavioral models can be useful for understanding the reasons why people do specific actions, and can suggest what interventions will best address specific barriers
- The behavior change wheel harmonizes findings from many behavior change frameworks, including those for tobacco control and obesity—it can also be useful for choosing information infodemic management interventions
- All models are flawed, but some models are useful; this one is useful because it provides interventions and policy categories

Source: Michie, S., Van Stralen, M. M., & West, R. (2011). The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation science*, *6*(1), 1-12.

How to think about behavior

How does this relate to infodemic management?

Your social listening and insights in step 1 can help you determine what your target population's capability, opportunity, or motivational factors may be at play, as well large health systems, structural and policy forces that impact their behavior.

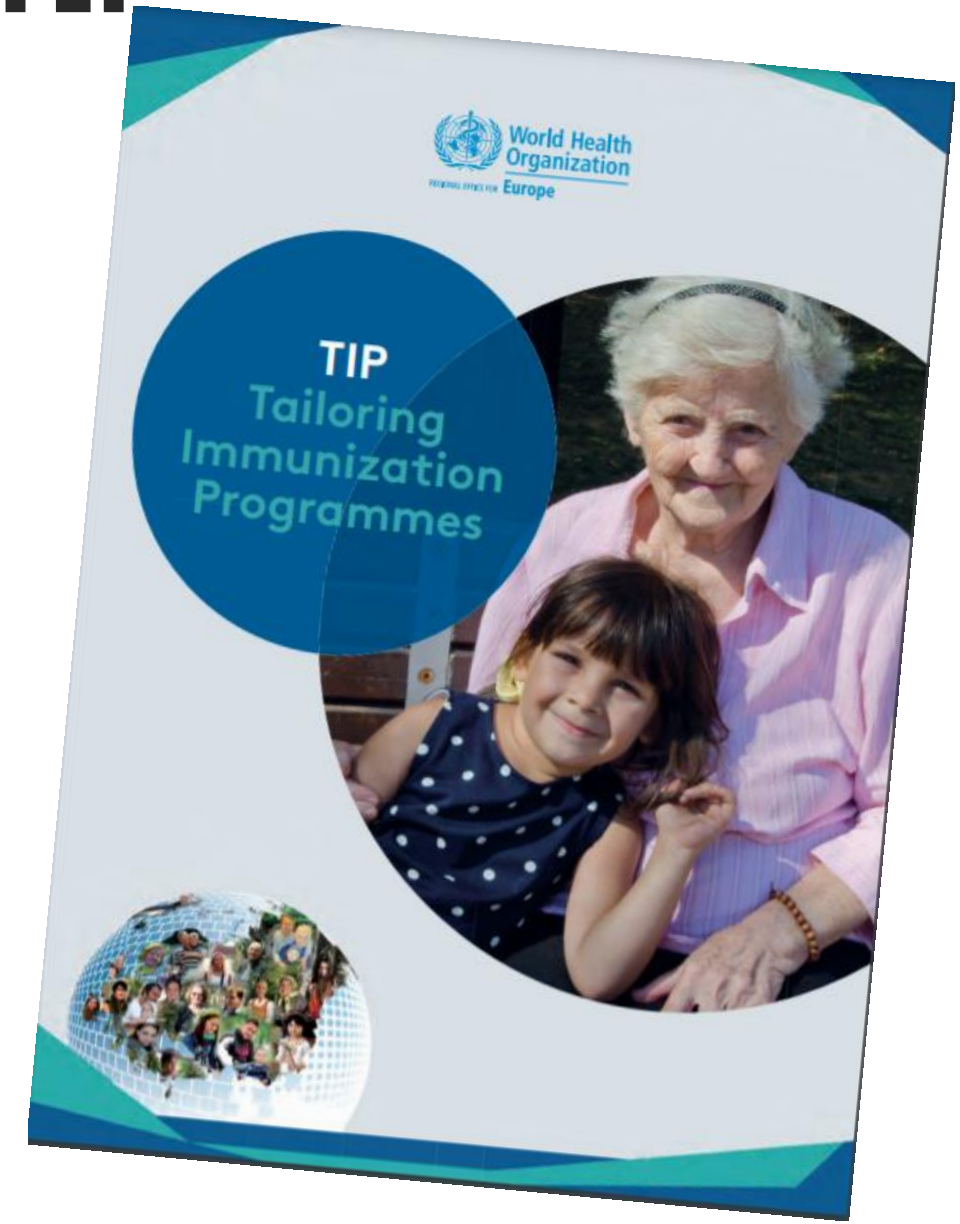
This will also shift constantly, requiring more updated programming and communications (step 2) and more rapidly deployed interventions and monitoring (step 3). **Infodemic managers can leverage socio-behavioral insights and other data sources for speedy action.**

Slow twitch, fast twitch

- Usual socio-behavioral diagnostic tools and approaches in public health to determine why a population is not enacting a certain health behavior can take years to implement
- In an emergency, we need to move faster, with more rapidly changing data, more communities of concern, and insights that are usable by health authorities (not just for academic audiences)
- Some diagnostic approaches need to be adapted for use in emergencies to deliver faster insights and programming
- Embedding behavioral scientists in infodemic management teams is necessary to build human-centered public health systems (especially in those systems with "sturdy 4x4" and "luxury vehicle" capacities)

Hat tip to WHO EURO TIP

- The Tailoring Immunization Programmes tool helps diagnose reasons for under vaccination in specific populations using COM-B and the behavior change wheel
- User-friendly guidance (but we need to be inspired to go faster)



Source:
https://apps.who.int/iris/bitstream/handle/10665/329448/9789289054492-eng.pdf

Diagnosing infodemic "pain points"

Domains to explore in social listening and integrated analysis to understand why there may be a gap between health guidance and population behavior:

- What are people:
  - Confused about?
  - Worried about?
  - Angry about?
  - Happy about?
  - Have other strong feelings about?

- What do people know?
  - Knowledge
  - Attitudes
  - Practices
  - Beliefs

- Where are the information voids?
  - Where are people seeking information but not finding it from credible sources?

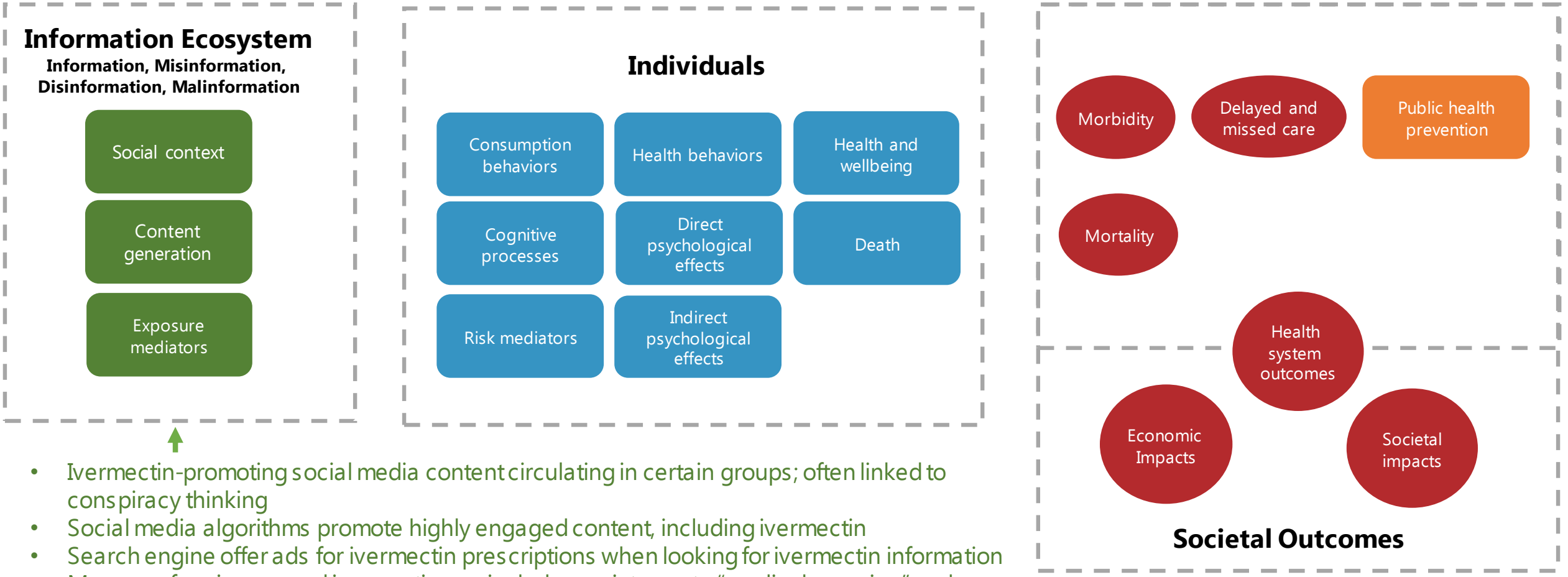
- How is official guidance being:
  - Shared?
  - Discussed?
  - Interpreted/remixed?

- How are people behaving/signaling related to a recommended health behavior? (focus on the *why*)
  - Digital footprints/behaviors (e.g. mobility)
  - Video/image/text reactions
  - Hashtag use
  - Alternate behaviors?

- What efforts are being tried by health authorities to support specific behaviors?
  - What seems to be working?
  - What seems not to be working?
  - Health service uptake/use data patterns and outliers in health status reporting
  - Is there a difference between popular perception vs reality?

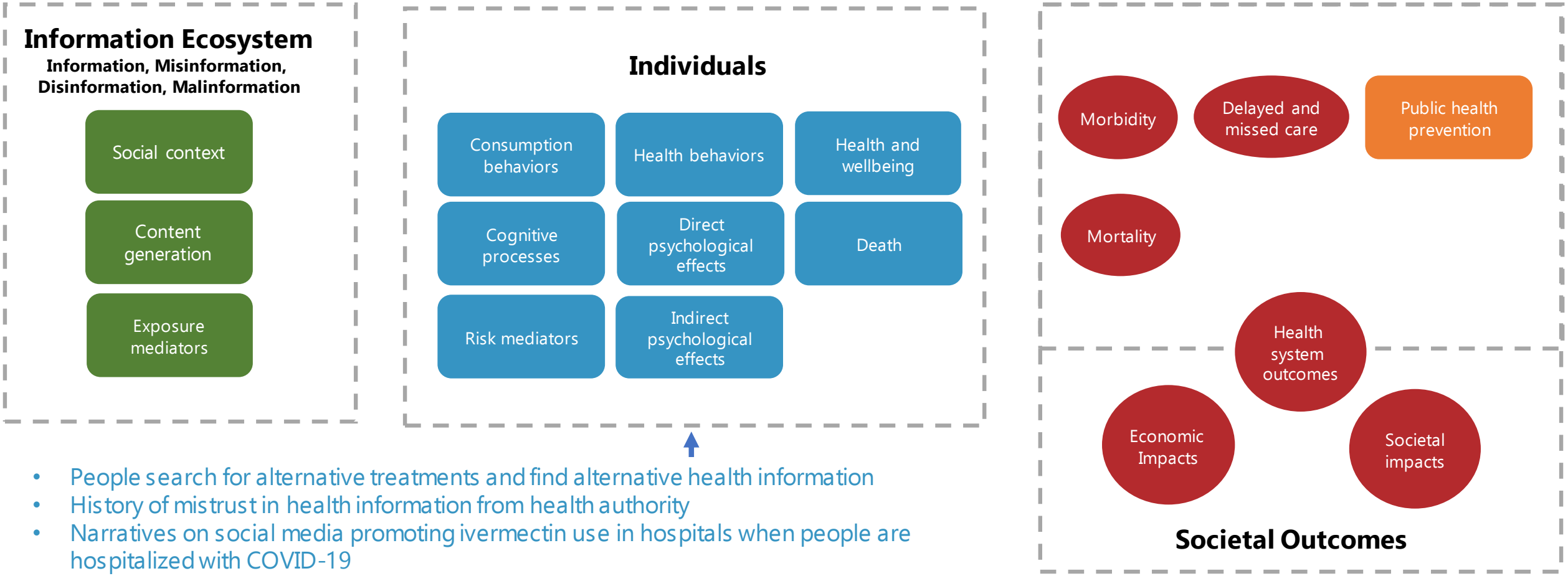
- Are there internal pain points within health system or emergency response that make it difficult to update communications and programming?

Example: Misinformation about unproven treatments contributes to ivermectin overdoses and medication shortage



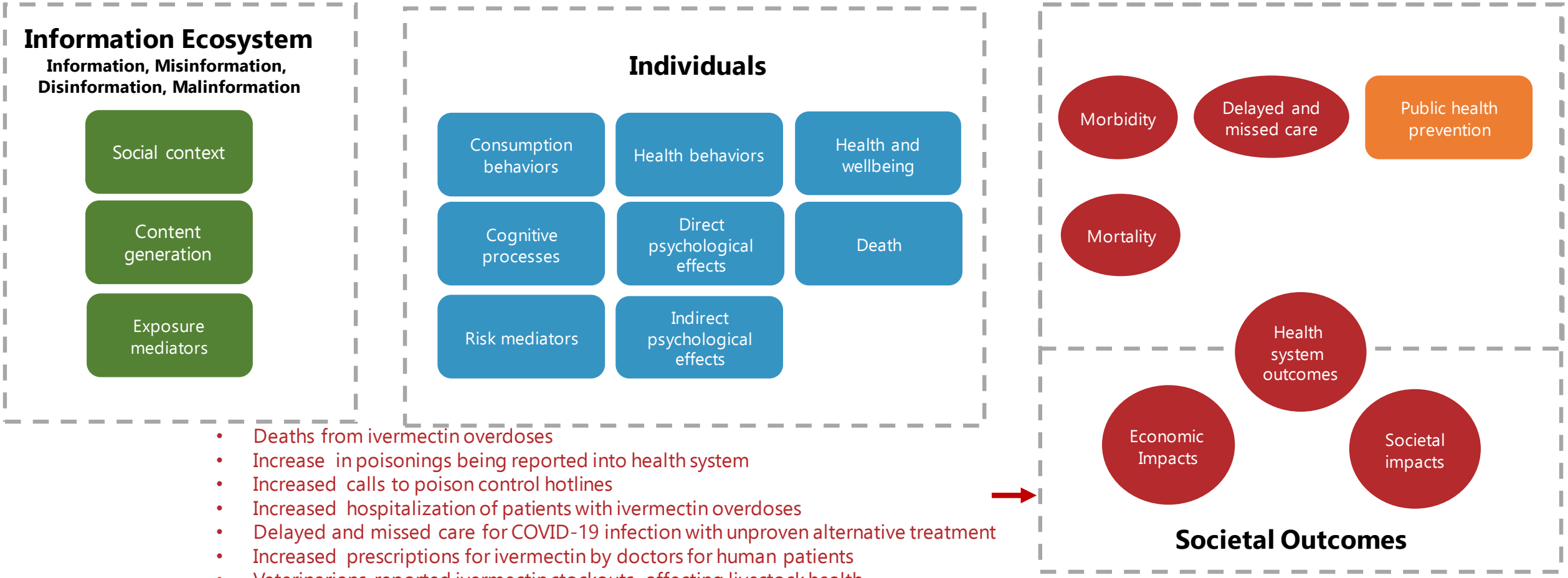
- Ivermectin-promoting social media content circulating in certain groups; often linked to conspiracy thinking
- Social media algorithms promote highly engaged content, including ivermectin
- Search engine offer ads for ivermectin prescriptions when looking for ivermectin information
- Message framing around ivermectin use includes resistance to "medical coercion" and protecting "medical freedoms"

Example: Misinformation about unproven treatments contributes to ivermectin overdoses and medication shortage



- People search for alternative treatments and find alternative health information
- History of mistrust in health information from health authority
- Narratives on social media promoting ivermectin use in hospitals when people are hospitalized with COVID-19
- Some feel a degree of control over their health by choosing ivermectin themselves vs getting vaccinated (something done unto them)

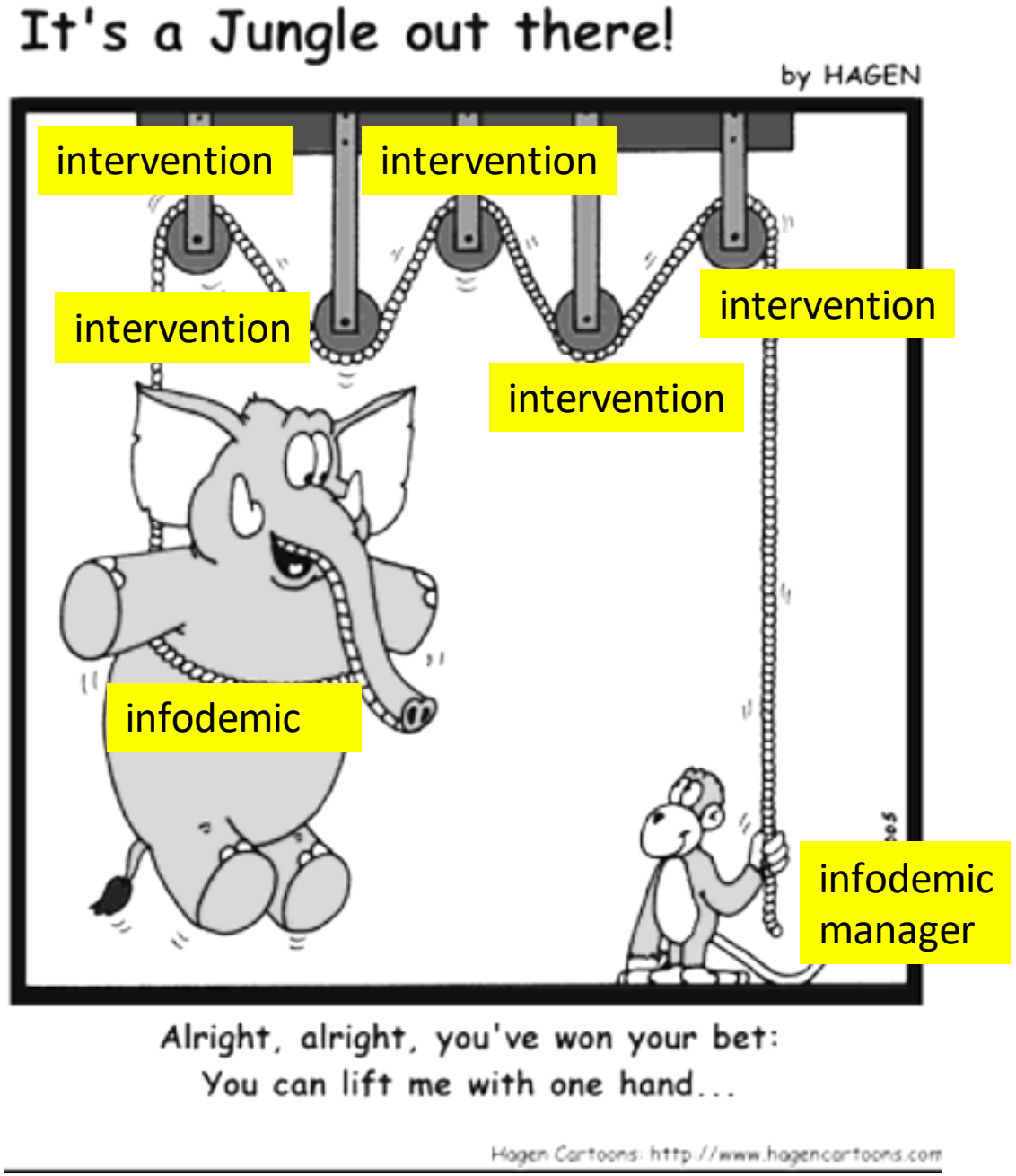
Example: Misinformation about unproven treatments contributes to ivermectin overdoses and medication shortage



- Deaths from ivermectin overdoses
- Increase in poisonings being reported into health system
- Increased calls to poison control hotlines
- Increased hospitalization of patients with ivermectin overdoses
- Delayed and missed care for COVID-19 infection with unproven alternative treatment
- Increased prescriptions for ivermectin by doctors for human patients
- Veterinarians reported ivermectin stockouts, affecting livestock health
- Courts throw out lawsuits against hospitals for refusing to give ivermectin to patients with COVID-19
- Widespread interest and use of ivermectin indicates ongoing mistrust of public health guidance

Slido break

What are some solutions you'd recommend to address this ivermectin issue in the infodemic?



Intervention categories

Can be easier and quicker to implement some interventions to make small improvements, but outcomes/impact can be harder to measure; it is likely multiple interventions need to be leveraged for higher degree of impact.

Education

Persuasion

Incentivization

Coercion

Training

Enablement

Note: Acceptability of interventions and possibility of unintended consequences is very important to consider when selecting!

Modeling

Environmental restructuring

Restrictions

Policy categories

Can be more expensive and take longer to implement, but can have lasting, system-level effects and may be easier to measure impact.


Regulation

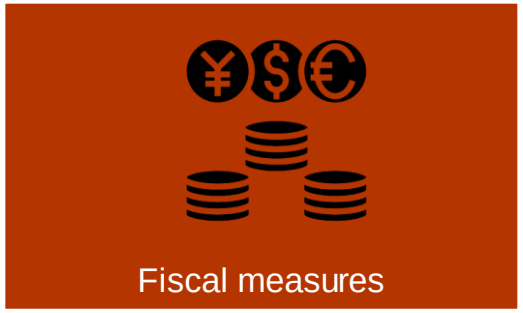

Service provision


Legislation


Marketing/communication


Environmental/social planning

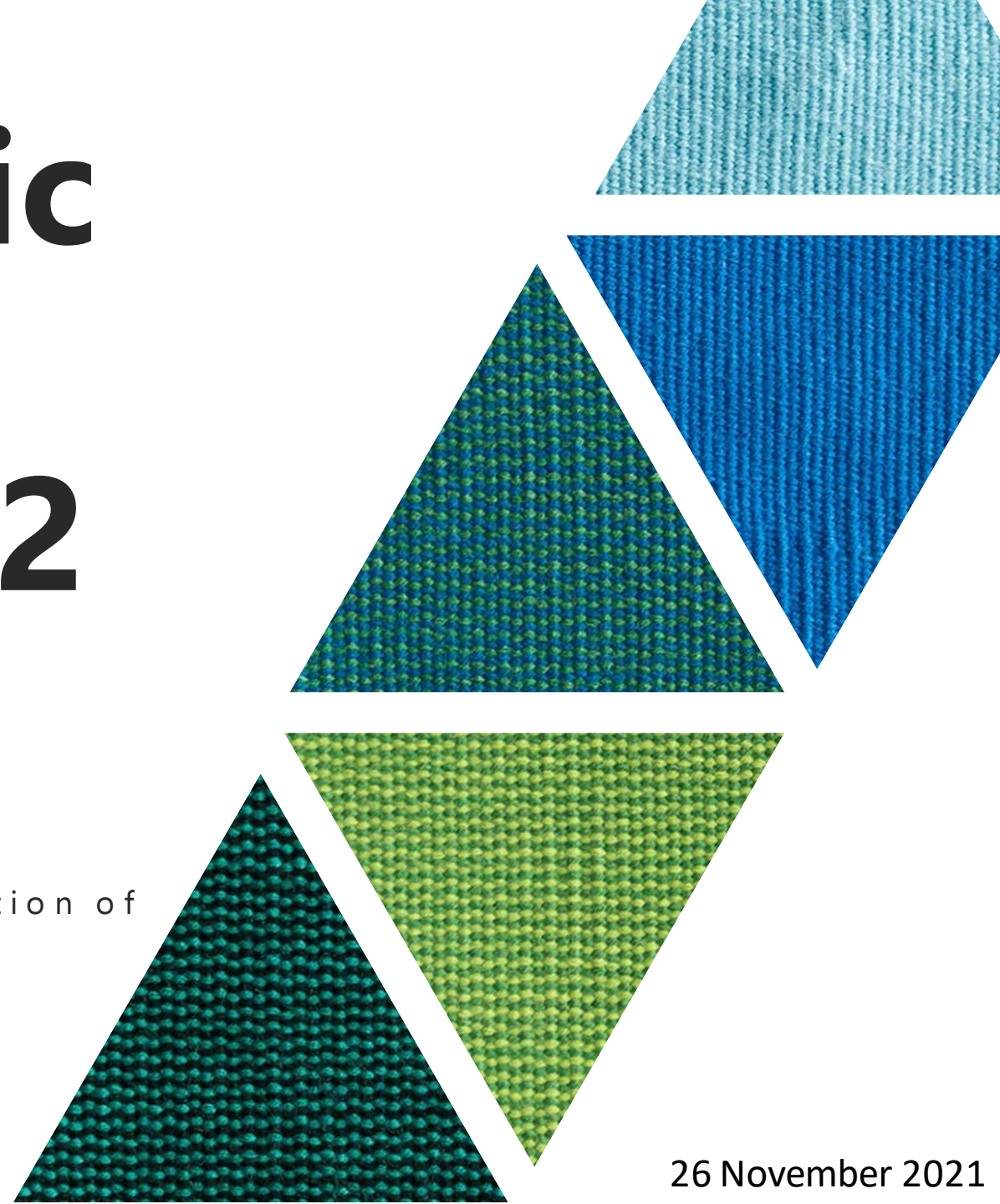

Guidelines


Fiscal measures

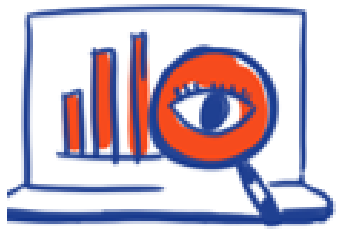
Example metrics and measures for intervening through design, implementation and evaluation

- This entirely depends on the barrier identified, intervention developed, what population it involves, the objective of the intervention, and what time frame the intervention is spanning.
- However, there might be several evaluation methods that are useful to consider no matter what kind of intervention you use.
  - Community-based participatory research (CBPR)
  - Most significant change (MSC)
  - Positive deviance
  - Participatory research practices

The Infodemic Manager Toolbox, v 1.2



Have additions or suggestions? Email them to infodemicmanagement@who.int for consideration of inclusion.



Social listening to understand the public's questions, concerns, narratives and misinformation

Listen and understand target population's information voids, information needs, concerns and challenges to develop more responsive health programs

- Utilize social listening tools and methods to collect data (online and offline) with a focus on vulnerable populations
- Classify and analyze data to identify information voids and provide input into "Inform" (#2) activities

- ❖ Identify questions and narratives where people are expressing concern, questions or confusion and prioritize those for action.
- ❖ Analyze data with the goal to give insights for proactive, not reactive action.

Questions to ask:

- What are people's health behaviors (self reported is probably *not* sufficient)
- How are people seeking information
- Where are people seeing information
- What information are people seeking
- What are people's KAPB (knowledge, attitudes, practices/behaviors and beliefs)?
- What kind of questions are people asking
- What sources of information do they trust
- What platforms/channels are people using to share and consume health information
- What are narratives that are emerging (do not stop analysis at rumor stage)
- What other credible sources of information are reaching people?
- What are people's attitudes and feelings that may be linked to behavior
- How are data disaggregated by sex, age, geography, vulnerable population, etc

Examples or methods:

community dipstick surveys, surveys of users online (web site users, users of chatbots, etc), population surveys (via phone etc), community listening (offline), closed online groups (hotline reporting, lurking in groups, community informants), mobility surveys, social media and web metrics (in public health format, not for marketing/PR)

Three social listening and integrated analysis truths:

- **There is no such thing as a magic infodemic dashboard.**
  - Don't look for technology solution to solve all your infodemic problems.
  - You will need to fill additional data to fill gaps, and the rapid data collection may be messy and incomplete.
  - Even if you work fast, be committed to evidence and core principles of monitoring and evaluation.

- **It's likely that you will need to manually compile and analyze multiple data sources from multiple platforms.**
  - You are the guide of how these datasets and analysis will be analyzed in an integrated way.
  - You need to consider goals, research questions, quality of sources, target populations, and research taxonomies that allow you to make integrated research insights from these different sources of information.

- **Social listening is a process and not an end product.**
  - Establishing a process of data collection, integrated analysis and reporting can take time. schedule regular time points when you analyze recent social listening data (or plan to collect more recent data) and develop insights and report out to stakeholders.
  - You need to focus your analysis on narratives (not pieces of content), information voids and questions people are actually asking.
  - Remember that factual information can also be repackaged and weaponized as misinformation, and that misinformation can be expressed in linguistic forms that avoid automated detection. Also, misinformation in forms of video and images is also harder to detect and track, but can be potentially more harmful. Build partnerships over time to listen to all content that is affecting your target populations most, not only those aspects of information and rumors that are easily analyzable.

Three social listening and integrated analysis best practices:

- **Integrated data analysis plans should be based on programmatic priorities (what are the programmatic needs you're trying to inform?)**
  - The first step is to define programmatic objectives and identify what available data sources apply
  - Develop an analysis plan for infodemic insights which include social listening insights as well as information from other data sources

  Set up a social listening approach for analysis across different channels that can be quickly updated
  - Set up your search terms and research/content taxonomies as there are different search formats for different platforms (eg Boolean)
  - There are different classifications of content types and types misinformation that you can borrow from (eg. First Draft classification)

- **Make it a habit of regularly checking in on all contacts and channels & platforms that you are trying to listen to**
  - Make an effort to understand information, content and opinions beyond your filter bubble/echo chamber on a specific platform.
  - Different platforms and channels have different norms and communication styles and features – It is important to understand how the platforms are used to share information and react to it
  - It is important that you maintain a human relationship with all your colleagues, contacts and collaborators, because they might have additional ideas for data sources or analysis

Key takeaways 1/2

- Information voids are a bigger problem than rumors or misinformation
- Social listening is just the first step of infodemic management
- Depending on the context, you'll rely more heavily on online or offline sources of information to understand questions and concerns
- We should prioritize understanding the most vulnerable communities, because they are also the most vulnerable to the infodemic
- Use data sources at hand, not only social media analytics or KAP surveys.
- Try to avoid collecting data for sake of collection, but using data for action--emphasizing data that can offer relevant insights quickly

Key takeaways 2/2

- Most digital social listening tools were designed for online marketing and need to be heavily modified for use for IM for public health
- All data sources and listening tools have major limitations—be careful of drawing conclusions not fully supported by limited evidence
- There is no magic dashboard; analysis can only be integrated by humans, not IT tools
- Develop a plan for integrated analysis that is based on programmatic needs – and present the insights in the report in a way that are actionable by colleagues that can take action based on it.

Key resources, guidance and tools

Guidance

- WHO Infodemic health topic page
- First Draft vaccines and misinformation resources
- UNICEF vaccine misinformation field guide
- US CDC addressing vaccine misinformation page

Coming soon:

- Field infodemiology guide
- WHO digital observation for health toolkit

Readings

- **Infodemic Signal Detection During the COVID-19 Pandemic: Development of a Methodology for Identifying Potential Information Voids in Online Conversations**
- **4th WHO Infodemic Management Conference, May 2022 – Advances in Social Listening for Public Health**
- **Subscribe to WHO Infodemic Management Newsflash**

Tools

- **Vaccination Demand Observatory**
- **EARS**

Tools and resources (not exhaustive, so do your own research):

- **Listening and analysis platforms**
  - Social media, Web, Media
    - Free: Google Analytics, Google Trends, Wikimedia Statistics dashboard, Hootsuite, Sprout Social, Mention, SocioBoard, TweetDeck, BuzzSumo, SocialMention, TweetReach, Lithium, Google News
    - Proprietary or limited access: Crowdtangle, Sprinklr, Pulsar Platform, TalkWalker, SocialBakers, Snaplytics, Newswhip, Meltwater, Cision, Brand24, Keyhole
    - UN family: WHO EARS, UNICEF Infodemic Observatory, UN Global Pulse
  - Health System
    - National health information system, MICS, DHIS, other health indicator data sources, WHO, UN, multilateral organization global indicator databases, national statistics office, National Institute of Public Health/ MoH databases, public health data research collaborations with academic or non-profit institutions
  - Community - online
    - Nextdoor.com, Reddit
  - Community – offline
    - Rumor tracking report from IFRC, U-Report from UNICEF, hotlines, marketing consumer insights, Rapid Community Assessments from US CDC
- **Research methods and data collection tools**
  - Research approaches: Betterevaluation.org, WHO Europe COSMO tool (https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/publications-and-technical-guidance/risk-communication-and-community-engagement/who-tool-for-behavioural-insights-on-covid-19)
  - Collection: Amazon Mechanical Turk, online surveys, focus groups, key informant interviews, panels, https://www.wikirumours.org/
  - See UN Global Pulse for assistance to UN country teams with Radio Listening using AI speech-to-text, for social listening, and for online survey design/development including A/B testing
- **Data analysis and visualization tools**
  - SocialMention, Sentiment Analyzer, Tableau, Plotly, DataWrapper

Information and data sources:

- Ask colleagues for data and information, and use Google Scholar and eLibrary search to find information and data about the country and topic of your interest.
- What open data sources are available in your country?
- Some examples:
  - https://ccp.jhu.edu/kap-covid/
  - https://www.statista.com/statistics/381455/most-trusted-sources-of-news-and-info-worldwide/
  - https://bidciviclytics.citibeats.com/
  - https://data.oecd.org/gga/trust-in-government.htm
  - https://unstats.un.org/sdgs/indicators/database/

Learning resources:

- https://www.who.int/docs/default-source/epi-win/presentations-of-all-speeches/webinar-16-tz-mediameasurement-8-april-2020.pdf?sfvrsn=5af42396_2
- https://www.youtube.com/watch?v=AN_hvrH-54w
- https://buffer.com/library/social-listening/
- https://www.dreamgrow.com/69-free-social-media-monitoring-tools/
- https://www.nngroup.com/articles/information-seeking-behavior-changes/ - How Information-Seeking Behavior Has Changed in 22 Years. The internet is increasingly used to gain knowledge and understanding of a topic. This knowledge is often acquired accidentally, as a byproduct of browsing. Critical internet use is becoming social.
- https://www.who.int/publications/m/item/artificial-intelligence-and-social-listening-to-inform-policy
- https://www.who.int/about/communications/relevant/listening
- https://www.sciencedirect.com/topics/computer-science/sentiment-analysis
- https://www.coursera.org/learn/social-media-data-analytics
- https://internews.org/sites/default/files/2019-07/Rumor_Tracking_Mods_3_How-to-Guide.pdf
- https://www.coursera.org/learn/importance-of-listening
- https://agora.unicef.org/course/info.php?id=23390

2

Delivering high quality health information and programming

Proactively adjust programming and share accurate, credible and appropriate information to target audiences to increase awareness and promote healthy behaviors

- **Prioritize filling in information voids**, this is where you can proactively prevent misinformation from taking hold!
- Develop, pre-test and tailor messages for different populations, utilizing appropriate communications mediums and channels and optimize for maximum engagement
- Define and use measures for effectiveness of messages and acceptance of updated programmatic approaches and track

Questions to ask:

- What high-quality health information currently exists, in what format and where?
- What are the scientific and communications clearance requirements for new content?
- How well is this existing information performing (basic usage metrics)?
- How will the program respond to questions, concerns, information voids and misinformation more effectively?
- How is search strategy of the population influencing content provision strategy?
- What other credible-seeming content that your population might be consuming?
- How might you disseminate/syndicate content through other credible messengers?
- What is your editorial rhythm for updating messages based on latest guidance and time stamping them?
- How are you using metadata and tagging to make messages as universally accessible as possible?
- How are you measuring effectiveness (not merely reach) of your messages?
- How are messages being pretested for acceptability?

Examples or methods: real-time A/B testing, content syndication, utilizing external certification of content for credibility, closed captioning for all videos, experimental methods for marketing campaigns, content header development based on search strategy for SEO optimization, use of Reddit AMA (be where people discuss), working with influencers, use of mobile phone operating system messaging, virtual assistant apps, pushing real time updated content to chat bots and via SMS, utilizing non-traditional trusted messengers and networks, offering content in multiple languages and formats tailored to platforms

Three truths about delivering high-quality health information:

- **Design content that speaks to values, identities and information habits of end users (who may reshare it , repurpose it or adapt it)**
  - Design for "mobile-first" delivery, where the vast majority of people are getting their health information. Posters won't save us.
  - Answer the questions that people are asking. Be clear in communicating about what is known and what is not known.
  - Content needs to be diversified in format and channels through which it will be distributed. Programmatic approaches all look different from channel to channel and population to population.
  - Consider readability, accessibility and usability of content for different audiences.
  - A sign that your content is successful is that your content was reshared, repasted, repurposed or iterated from. This means that you should consider preparing content without your organization's logo.
- **Design content in a way that adheres to internet content syndication and reuse best practices.**
  - It is critical to set up systems and processes for rapid content development and dissemination that have been crawled and integrated by major search engines and social media platforms. This should not be separately managed from the more traditional communications material production.
  - Content needs to be well-formed and this includes metadata, tagging, headers, clean code and optimized for searchability.
  - Consider the needs of people with disabilities and low literacy populations.
  - This is not only an issue of technology that is pushing messages out of your organization, but also a matter of editorial style in writing metadata, which influences how the content displays on platforms that harvest your content (such as in Google Search panels and social media snippets)
- **Creating and disseminating high-quality content requires promoting reliability and credibility of source.**
  - A rhythm of new content or message development and dissemination needs to be established and maintained.
  - Your messaging needs to be consistent across platforms, and if the message changes, there needs to be a clear reason for it and change needs to be timestamped.
  - Consider establishing a common brand shared by partners (such as Viral Facts in Africa) or using multiple brands that are trusted by multiple segments of your target population (see lecture on factchecking). Experience shows that sole-source content can be more easily discredited and weaponized online, even if it comes from an objectively reputable source.

Three best practices for delivering high-quality health information:

- **Design content with the eye to be reused, remixed and digitally distributed.**
  - Create templates that have a consistent brand and editorial style and can be used for quick creation of content by non-specialist colleagues.
  - Design content to be distributed in the channels where your audiences engage in conversation/where they are.
  - Consider releasing content under creative commons licenses or released in the public domain to be shared and used elsewhere.
  - Use technology to push content to where people use information and where possible, engage in two-way dialogue.
- **Test your content before setting it free.**
  - Utilize social listening insights to understand how end users are framing their understanding and values related to the emergency, and develop messages that speak to those values (e.g. libertarian versus communitarian values)
  - When possible, pre-test your materials with members of your target audience.
  - Always validate translations of content.
  - When possible, use A/B testing approaches to understand which messages and designs resonate most with target audiences before you release them.
- **Measure effectiveness of your messages, not only their reach.**
  - Review analytics to understand which messages performed the best. This can include impressions, reactions, shares, and measures of when messages jump platforms or were repackaged/reshared by influencers and amplifiers with their audiences.
  - Integrate successful message frames in future message dissemination.

Tools and resources (not exhaustive, so do your own research):

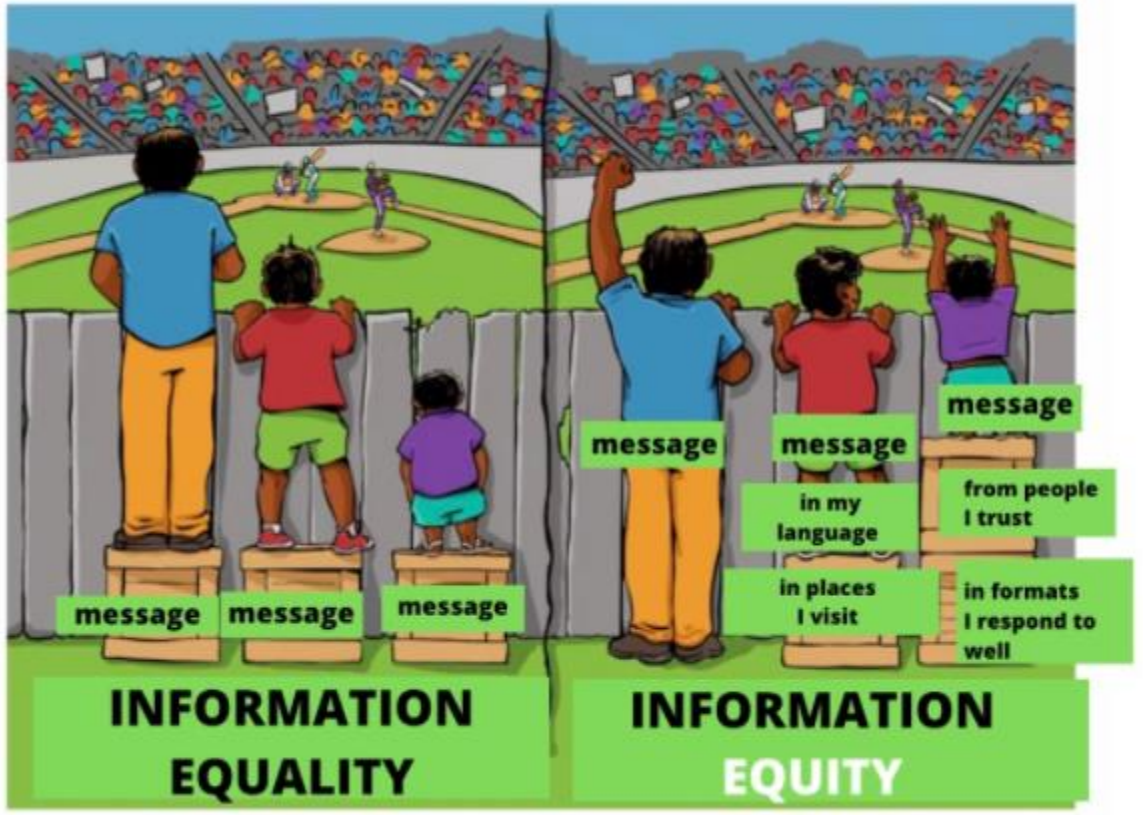
- **Content development platforms**
  - Free: Canva, PicMonkey, RelayThat, Pixlr, GIMP, Kreta, Audacity, iMovie, Kapwing, VLNC, search for apps that you can use on your phone, Noun Project
  - Paid: Adobe Photoshop and Illustrator, FinalCut Pro
  - Content quality/readability/accessibility: WCAG, readability checker, US CDC Clear Communication Index,
- **Content distribution platforms**
  - Social media
  - E-newsletters
  - Emergency response communication/update mechanisms: situation reports, daily updates
  - Web integration tools (RSS, web services for content query, GIPHY panels)
  - Online repositories, such as Wikimedia, Unsplash, Translators Without Borders
- **Content syndication**
  - Connect with your digital team to understand content dissemination channels, formats (and ad credits) available
  - To publish RSS, and distribute for use on subnational web sites and distribution channels, integrate with chatbots
  - Be a bot - auto publish on social media on a schedule
  - Produce scripts for hotline inquiries
  - Partner with medical associations and NOGs that are influential online/offline to target different stakeholders in the health system
  - Partner with social media and tech companies to push messages to target populations and georgraphies as per analytical insights.
  - WHO/ITU partnership with telecoms for SMS push messages; UNESCO partnership with broadcast unions for radio and TV message libraries and syndication

Key takeaways 1/2

- In emergencies, people process information differently. They tend to believe the first thing they hear, they look for additional sources of information and they tend to have trouble processing complex information.
- In this function, infodemic management is intimately linked to a strong communications and RCCE response.
- There's always an inherent tension between being first and being right in communication. But infodemic management insights can help shape messages and their delivery that address people's concerns and information voids quickly.

Key takeaways 2/2

- Communities that are vulnerable in emergencies and pandemics are also vulnerable to infodemics.
- Common infodemic management tools may miss out on better understanding the needs of vulnerable communities that are harder to listen to.
- Leveraging networks of trusted messengers is critical to gain an understanding the needs of vulnerable communities and promote better infodemic management interventions and their use.



Key resources, guidance and tools

Guidance

- WHO Communicating Risk in Public Health Emergencies
- OpenWHO Risk Communication in emergencies course
- US CDC crisis and emergency risk communication page
- US CDC Health Equity Guiding Principles for Inclusive Communication
- WHO COVID-19 Global Risk Communication and Community Engagement Strategy – interim guidance
- RCCE collective service

Readings

- Ebola and the narrative of mistrust
- Crisis Communication and Public Perception of COVID-19 Risk in the Era of Social Media
- Complexities to consider when communicating risk of COVID-19

Tools

- US CDC Clear Communication Index
- UNICEF behavior change communication in emergencies toolkit

Information and data sources:

- Ministry of Health and related ministries, WHO and other UN agencies

Learning resources:

- https://www.naccho.org/uploads/downloadable-resources/Social-Media-Toolkit-for-LHDs-2019.pdf
- https://journals.lww.com/jphmp/Fulltext/2020/09000/Social_Media_in_Public_Health__Strategies_to.14.aspx
- https://www.optimizely.com/optimization-glossary/ab-testing/
- https://www.cdc.gov/ccindex/tool/appendix-a.html
- https://www.cdc.gov/ccindex/index.html
- https://www.nngroup.com/articles/information-foraging/
- https://uxplanet.org/social-media-graphics-design-tips-and-best-practices-820f5ede12e3
- https://www.edx.org/course/online-marketing-strategies - Online Marketing Strategies. Learn about online marketing opportunities and how to use the Internet, social media, and digital analytics to successfully market your business.
- https://www.coursera.org/learn/foundational-skills-communicating-health - Foundational Skills for Communicating About Health. Offered by University of Michigan. Effective communication is a core skill that nearly every health professional will need and use during their careers.
- https://www.coursera.org/specializations/seo
- https://www.coursera.org/specializations/social-media-marketing
- https://www.coursera.org/learn/content-marketing

3

Intervening through design, implementation and evaluation

Apply interventions, toolkits, methods

Counter misinformation and disinformation

Monitor info, Environment and Responses

Key takeaways 1/2

- Intervening on the infodemic is complicated because the phenomenon is complex
- We want to focus on changing people's behavior to support healthier outcomes
- We can do this by developing interventions that are human-centered and behaviorally-informed
- It is likely that you will need to develop multipole interventions on multiple levels to make an impact. This includes information environment, individual and health system and society.
- However, it is important to consider as a health authority where your remit is and where you have the most influence to address the infodemic.
- The science of "what works" in infodemic management is nascent and you will need to borrow from other fields and test out new ideas. Fail fast, iterate and learn.
- ***Watch out*** for unintended consequences of actions and interventions, short and long term, and beyond the health system

Key takeaways 2/2

- Behavioral models can be useful for understanding the reasons why people do specific actions, and can suggest what interventions will best address specific barriers
- From the case studies it is clear that partnerships across different stakeholders are critical for building effective infodemic management interventions.
- It is also equally critical to tailor to specific individual and community needs. No one infodemic intervention fits all.
- Consider how you will monitor and evaluate the rollout and impact of an intervention from the beginning. Design metrics based on a model.
- Where possible, leverage participatory approaches for ideation, design, development, rollout, monitoring and evaluation of interventions.

Key resources, guidance and tools

Guidance

- WHO Europe TIP
- US CDC Rapid Community Assessment

Readings

- The current state of UX in health
- Design as a tool for public health innovation
- Complementary approaches to problem solving in healthcare and public health: implementation science and human-centered design

Tools

- UNICEF HCD toolkit
- Behavior change wheel
- The little jab book (mapping interventions to the problem)
- The BASIC framework
- IDEO design kit
- betterevaluation.org
- participatorymethods.org
- Center for participatory reearch

Example metrics and measures for intervening through design, implementation and evaluation

- This entirely depends on the barrier identified, intervention developed, what population it involves, the objective of the intervention, and what time frame the intervention is spanning.
- However, there might be several evaluation methods that are useful to consider no matter what kind of intervention you use.
  - Community-based participatory research (CBPR)
  - Most significant change (MSC)
  - Positive deviance
  - Participatory research practices

Apply interventions, toolkits, methods

Apply tailored content and strategies to address target population's information needs and through behaviorally informed tools, empower individuals and communities to enact healthy behaviors

- Design interventions (beyond messaging) for target populations and context that encourage appropriate health behaviors
- Define a model of change and clarify processes which will be used to assess the effectiveness of interventions
- Produce intervention and implement

- **A message can be part of an intervention but rarely succeeds on its own.**
- **An intervention usually operates on multiple levels, including policy, societal, community, individual, health system levels, with a focus on socio-behavioral approaches that influence behavior.**
- **Achieving behavior change is difficult and it requires consistent reinforcement and time.**

Questions to ask:

- What kinds of perceptions or health behaviors do you want to change?
- How are you going to measure effectiveness of your intervention and this behavior change?
- Which community do you want to target with your intervention and why?
- What kind of exposure to misinformation or too much information does this community have?
- What levels are you trying to influence with your intervention?
- What is the current evidence about what works best in this population to encourage behavior change?
- How can you reach your target population with interventions?

Examples or methods:

Use of social inoculation interventions (eg Bad News, Go Viral), development of rapid community feedback mechanisms, health/digital literacy education, digital decision aids, tools for crowdsourced factchecking, training chatbots, participatory mapping of misinformation, community based participatory research and action, UX testing to improve interventions, peer to peer approaches

Three truths about applying interventions, toolkits and methods:

- **There are few out-of-the box interventions that exist for infodemic managers.**
  - You will have to innovate your own.
  - Development of interventions needs to be based on evidence but don't let the perfect be the enemy of the good. Strive for building fast and ugly, rolling out quickly, learning from experience, and iterating next versions of intervention.
  - Look at examples of what has worked in the past, or promising interventions and borrow heavily.
- **Your intervention needs to have a logic behind it; how does this relate to improving response to the infodemic or reducing the impact of the infodemic? How do you know?**
  - Some aspects of infodemic management will be in your control and some will not. Strive to develop interventions that address areas within your control vs creating interventions to address things that are not within your control.
  - Consider building a logic model that helps describe the problem, the intervention and how you intend to understand outcomes and impact of the intervention, and how you plan to measure them.
  - Always ground your ideas for interventions with colleagues and audiences that you want to reach.
- **Funding is always going to be insufficient for your ambitions.**
  - Leverage cheap and fast tools to build, rollout and measure interventions.
  - Lean into partnerships and collaborations for expertise and support from colleagues.
  - You need to know enough about every topic in order to be the glue between partners, experts, collaborators. But you do not need to be an expert about everything yourself; know enough to promote a common vision and buy-in from partners.

Three best practices for applying interventions, toolkits and methods:

- **Form a small team that you can work with to help develop the ideas.**
  - Look for people with different disciplinary backgrounds, experience and skills.
  - Keep learning and sharing your experience within your professional networks.

- **Build quickly, don't get stuck in data hamster mode and analyzing data instead of intervening.**
  - Build off of what already exists. Consider any ethical clearance needed for community-based interventions.
  - Be careful to not overburden or overimpose metrics and data collection on already stretched emergency responders.
  - The definition of insanity is repeating the same over and over again and expecting a different result. Creativity is encouraged.
  - When you are introducing a new innovation, do so only when you've identified and defined a clear gap and you have secured funding to build a new intervention. Design new interventions in ways to integrate them into existing systems.

- **Be as participatory as possible, with colleagues, target communities and partners.**
  - Strive to involve people from your target audience in the process as early as possible.
  - Consider implementing interventions that are participatory in nature, from its design to implementation, use measurement.
  - Question your assumptions about the populations you are trying to serve. Be mindful of organizational, political and social dynamics and biases that may affect intervention design and roll-out. You can rarely go wrong by listening more to the people you are trying to serve.

Tools and resources (not exhaustive, so do your own research):

- **Ideation and intervention development resources**
  - https://www.hcd4health.org/resources
  - https://www.ideo.com/tools
  - https://www.euro.who.int/en/health-topics/disease-prevention/vaccines-and-immunization/publications/2019/tip-tailoring-immunization-programmes-2019
  - https://www.nngroup.com/videos/remote-card-sorting/ - Remote Card Sorting (Video) - 5 steps for conducting a card sorting study remotely, to discover how users group items together. This is useful when designing your IA
  - https://www.coursera.org/specializations/user-interface-design
  - https://uxdesign.cc/tagged/covid19

- **Implementation and operational considerations**
  - https://www.thecompassforsbc.org/trending-topics/covid-19-resources-social-and-behavior-change
  - https://healthliteracy.bu.edu/
  - https://www.jmir.org/2019/1/e11528/
  - https://apps.who.int/iris/bitstream/handle/10665/260480/WHO-RHR-18.06-eng.pdf
  - https://www.who.int/reproductivehealth/publications/digital-interventions-health-system-strengthening/en/
  - https://www.ictworks.org/ict4d-solution-technology-catalog/#.X7lV981KiUk
  - https://misinforeview.hks.harvard.edu/article/global-vaccination-badnews/
  - https://www.nngroup.com/articles/covid-changed-users/

Information and data sources:

- See step 1.

Learning resources:

- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6879094/
- https://jech.bmj.com/content/70/5/520
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6701588/
- https://pilotfeasibilitystudies.biomedcentral.com/track/pdf/10.1186/s40814-019-0425-6.pdf
- https://cocoa.ethz.ch/downloads/2019/12/2518_Kowatsch%20et%20al%202019%20Design%20Evaluation%20Criteria%20Success%20Factors%20DHIs.pdf

Offer corrections in a timely way in formats and through channels that match how the misinformation is spread and promote credibility and trust in health authorities and service delivery.

- Build network of stakeholders to share information and improve reporting processes
- Develop and utilize SOPs for collecting, analyzing, and correcting misinformation at multiple levels, including clear roles and responsibilities
- Track misinformation and fact checks and trends over time

Questions to ask:

- What are the attributes of misinformation that need to be corrected, and are the corrections designed to match the tone, medium and timeframe of misinformation?
- What are lessons learned from previous efforts to correct health misinformation in this population?
- What corrections strategies are used and how are corrections disseminated through networks and within what time frames?
- Are there existing processes in MoH to monitor health misinformation and factcheck it?
- Are policies or partnerships in place with tech platforms to address misinformation?
- Are there templates prepared for receiving, analyzing, classifying, correcting, and disseminating rebuttals?
- In addition to health authority channels, are there other channels through with you disseminate health information and corrections? Is credibility of health authorities taken into account when prioritizing channels?
- How is effectiveness or reach of fact-checks measured?
- What is the "tipping point" for determining what misinfo to react to vs ignore?

Examples or methods:

dedicated fact-checking portal, factchecking web site, place to send claims to, alliance between regional and country-level factcheckers, health authorities and media outlets (such as Africa Infodemic Response Alliance), regular media briefings, crowdsourced factchecking, crowdsourced dissemination of factchecked claims, prepared design templates for rapid dissemination across different social media platforms, partnership with influencers who factcheck, assess risk to populations as part of intervention design process

Three truths about countering misinformation and disinformation:

- **You will need to focus your work on parts of the ecosystem where you will have the most impact; tracking misinformation should not take up the majority of your time and instead focus on information voids.**
  - Recognize that some types of misinformation are more harmful than others and you should be focusing on mitigating those. Each health authority will have a different tolerance for risk and exposure.
  - Information voids are a space for confusion that health authorities can address—fill them quickly before they are filled by others!
  - Understand the relationship between factcheckers, health authorities and others that are working on rumor tracking and misinformation tracking.
  - Consider the needs of unnetworked or closed populations (e.g. migrants, hard to reach, undocumented, religious or minority communities) and how they encounter misinformation and how you can best counter it.

- **Prebunking (type of social inoculation) is just as important as debunking.**
  - It's important to have a strong content dissemination strategy to match a strong factchecking/correction strategy.
  - Prebunking effectively requires a deeper understanding of information environment, types of misinformation that are emerging, and being able to predict what narratives may be gaining traction.
  - You should be able to break down or classify misinformation by theme, gist, target audience, medium, channel, and use of visuals. If similar types of misinformation surface, understand how the message might have mutated in format or how it jumped platforms.

- **The tipping point for when to respond to misinformation and disinformation will be different from country to country and from context to context.**
  - Different Ministries of Health might have varying levels of tolerance for outrage or misinformation gaining traction.
  - It's important to understand when Ministry of Health prefers to respond to misinformation versus ignore it.
  - Help define the tripwires for when misinformation needs to be responded to, as opposed to just tracking it.

Three best practices for countering misinformation and disinformation:

- **Choose a taxonomy of classifications for mis/disinformation and stick with it.**
  - Analysis of misinformation is only possible if there is a systematic way of arranging it, organizing it and analyzing it.
  - There are factchecking platforms that you can use to help with reporting, classification and analysis.
  - Depending on new types of misinformation that you may track, you may need to update the taxonomy, but be careful that updates do not make new data incompatible with retroactive insights. When in doubt, be a lumper, not a splitter of categories.

- **Develop a strong partnership of organizations (or join and existing one) that collect mis- and disinformation, collate data and respond.**
  - Different partners might have access to different platforms, tools, data and response mechanisms. Use partnership with amplification of content that fills information voids.
  - Ensure that debunks are carefully designed to match the format or emotional intensity of the misinformation, and that content in general is emotionally engaging and shareable.
  - If a debunk happens in a forest, is there anyone to hear it? Make a plan for dissemination of debunks, ideally within 4 hours of discovery of misinformation.
  - The debunk should be shared on the same channel where the misinformation was spread.
  - Harmonize data collection, analysis and dissemination approaches where possible.

- **Regularly report out key insights on major misinformation narratives that have been detected and void fillers.**
  - Ensure that major misinformation or narratives that are detected are quickly shared with decisionmakers to adjust programmatic response, especially in emergencies.
  - If information voids are detected, make recommendations on how to fill the void with additional content and create it.

Tools and resources (not exhaustive, so do your own research):

- **Factchecking**
  - https://firstdraftnews.org/training/
  - https://skepticalscience.com/debunking-handbook-2020-downloads-translations.html The Debunking Handbook 2020: Downloads and Translations. In November 2011, we published The Debunking Handbook.
  - https://meedan.com/check - Engage your audience where they are, automate the collection and triage of claims, and scale your response.
  - https://www.journaliststoolbox.org/2020/11/21/urban_legendsfact-checking/
  - https://toolbox.google.com/factcheck/explorer
  - https://www.reutersagency.com/en/reuters-community/7-verification-tools-for-better-fact-checking/
  - https://www.poynter.org/ifcn/
  - https://www.reutersagency.com/en/reuters-community/7-verification-tools-for-better-fact-checking/
  - https://www.poynter.org/shop/fact-checking/handson-factchecking/
  - https://www.researchgate.net/profile/Lauri_Rapeli/publication/326497071_Fighting_Misperceptions_and_Doubting_Journalists%27_Objectivity_A_Review_of_Fact-checking_Literature/links/5b62f0e8aca272a2d67bd33b/Fighting-Misperceptions-and-Doubting-Journalists-Objectivity-A-Review-of-Fact-checking-Literature.pdf

- **Prebunking**
  - https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0175799
  - https://mediawell.ssrc.org/citation/prebunking-interventions-based-on-inoculation-theory-can-reduce-susceptibility-to-misinformation-across-cultures/
  - https://firstdraftnews.org/latest/the-psychology-of-misinformation-how-to-prevent-it/
  - https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4746429/

Information and data sources:

- https://covid19misinfo.org/
- https://reporterslab.org/fact-checking/
- https://www.poynter.org/

Learning resources:

- https://firstdraftnews.org/latest/information-disorder-the-techniques-we-saw-in-2016-have-evolved/
- https://covid19misinfo.org/fact-checking/
- https://factcheckingday.com/articles/28/develop-basic-fact-checking-skills-with-this-online-course
- https://firstdraft.arist.co/courses
- https://medium.com/political-pandemonium-2020/how-civil-society-can-combat-misinformation-and-hate-speech-without-making-it-worse-887a16b8b9b6
- https://www.techsoup.org/community/events-webinars/how-nonprofits-can-identify-expose-and-stop-the-spread-of-mis-disinformation-2020-09-29

Measure the impact of interventions and countering strategies and course correct.

- Apply evaluation methods to design, implementation and improvement of interventions
- Estimate the impact of the interventions
- Develop recommendations for improvement

Questions to ask:

- What is your intervention and monitoring timeline and how does if feed into real time monitoring and social listening insights?
- What metrics are being built into all steps (deliver, apply, and correct) to track what you are doing?
- Is there more than one data stream that you can use to understand the impact of a particular strategy?
- How quickly does the misinformation die out once you've addressed it?
- Have people changed health behaviors once you implemented your intervention?
- Which level of the intervention had the planned impact?
- What kinds of recommendations can you provide to either improve public health programme design and delivery, or to improve the intervention?
- How are you reporting on what you have learned?

Examples or methods:

Use of multiple datasets that measure changes along the planned intervention pathway, participatory monitoring involving community members, using community informants, running natural experiments to understand how different message frames might work in different populations, use of issue briefs, inclusion of analysis and recommendations into situation report

Three truths about measuring impact of interventions and countering strategies, and course correcting:

- **Measuring infodemic interventions is hard.**
  - There are no standard indicators that can easily enable you to measure effectiveness and impact. You will need to design these or proxies as you go along.
  - At the same time, do not fall into a trap of only using simple communications indicators, such as reach, because there is not other data available for your M&E framework.
  - Even if you develop proxy indicators, evaluate them as you work and if necessary, adapt them.
- **You can only measure the tip of the iceberg – only what is measurable, only what you can collect data for, and only what is visibly manifested in people's behavior online or offline.**
  - Whatever data you will collect and work with, it will be incomplete and not representative. This is why it is important that you make heavy use of M&E principles and integrated analytical approaches, which can guide you in understanding of what you know and what you don't know.
  - Having incomplete and unrepresentative data doesn't mean that you cannot use them to inform your decisions.
- **M&E should not be an afterthought – it should be part of your work throughout the process.**
  - There is a direct correlation between the strength of your collaborations and partnerships and the diversity of data that you have available to you, to the usefulness of insights you generate, and your ability to counter and course correct the infodemic.
  - Your M&E framework needs to be as lean as possible – there is usually a huge push to collect more information than is necessary for intervention evaluation. You need to keep data collection and analytics agile, so that interventions get timely feedback from analytics. Be ready to defend lean and targeted data collections.
  - Consider the cost and burden of data collection and analytical methods that you are introducing; many routine or indicator-based health information activities fail, have low quality or are unsustainable due to complexity and cost.
  - Generally speaking, national-level data is generally less useful for infodemic management than subnational level data. If you set up a nimble and less burdensome data insights process, you can get granular and community-specific information without overburdening the response with too much information all the time everywhere.

Three best practices for measuring impact of interventions and countering strategies, and course correcting:

- **Build a culture for evidence-informed response, and recognize that you will often have to play an educator and infodemic manager in these roles.**
  - Be thoughtful and gentle on feedback on indicators that colleagues present that might not be truly useful or relevant.
  - Work to troubleshoot mismatches between datasets, indicators and insights – your aim is to harmonize at least a core set of indicators and methods to enable a more efficient and nimble integrated analysis.
  - Start by using issue briefs and including your recommendations into situation reports to expose the emergency responders to the insights and your thinking, and build infodemic management into their thinking.
- **Always ask yourself the question: How do we measure this? How do we know?**
  - If you are missing a data source, find other data sources that approach the problem from a different angle.
  - Remember that you are not only measuring the amount of misinformation and disinformation, but you are also measuring impact of too much information.
- **Be thoughtful in your countering strategies by aiming for wide distribution of the interventions ensuring that it impacts intended communities.**
  - Consider what might be a metric for success for a specific intervention, and how this is linked to program outcomes.
  - If you see a downward trajectory in numbers of queries of questions on a particular topic, this does not always mean that the counter was the reason why the questions stopped. People ask questions online driven by many other factors, including social media/media conversation, which sometimes have their own cycles of narratives rising and dropping. Often, if there is enough public pushback against a piece of misinformation, the conversations are moved to private groups, because it is no longer socially acceptable to express certain claims openly. This can skew your data as well, and a more comprehensive thought needs to be put into validating your assumptions and conclusions.

Tools and resources (not exhaustive, so do your own research):

- **Evaluation frames and approaches**
  - Betterevaluation.org, measureevaluation.org
  - https://www.who.int/reproductivehealth/publications/mhealth/digital-health-interventions/en/
  - https://www.americanpressinstitute.org/fact-checking-research-studies/fact-checking-research-what-works-what-doesnt-whats-promising-in-accountability-journalism/ - What works, what doesn't, what's promising in accountability journalism
  - https://www8.gsb.columbia.edu/media/sites/media/files/PNAS-2017-Jun-17%20Gita%20research.pdf
  - https://www.cdc.gov/eval/guide/step3/index.htm#types

- **Integrated analysis**
  - https://hbr.org/2012/09/metrics-are-easy-insights-are-hard
  - https://gh.bmj.com/content/bmjgh/5/9/e003607.full.pdf
  - https://royalsocietypublishing.org/doi/10.1098/rstb.2018.0276
  - https://www.nccmt.ca/knowledge-repositories/search/124
  - https://journals.sagepub.com/doi/pdf/10.1177/16094069156245 74

- **Evidence-informed policymaking kits**
  - Resources for writing briefs: https://www.cdc.gov/policy/polaris/training/policy-resources-writing-briefs.html
  - https://www.sagepub.com/sites/default/files/upm-binaries/95408_Chapter_8_THE_ISSUE_BRIEF.pdf
  - https://www.utm.utoronto.ca/asc/sites/files/asc/public/shared/pdf/wdi/sample_course_materials/soc/SOC_PolicyWritingGuide.pdf

Information and data sources:

- Look at steps 1 and 4.

Learning resources:

- https://www.coursera.org/learn/health-equity-research-methods
- https://www.coursera.org/learn/data-public-health - Data and Health Indicators in Public Health Practice
- https://www.coursera.org/learn/the-socio-technical-health-informatics-context - The Social and Technical Context of Health Informatics

4

Promoting and supporting resilience, healthy behaviors and community engagement

Measure and understand infodemic to behavior link (online-offline gap) and apply learnings to supporting individuals and communities' resilience against misinformation; put individual and community leadership at the core of long-term strategies in improving the community-to-health-system interaction.

- Develop measures that overcome the digital-real world gap in understanding how individual behavior is affected by the infodemic
- Strengthen individual and community involvement and leadership in infodemic management with localized strategies and tools
- Measure community empowerment
- Integrate measures into standard reporting processes into health system

- **There is a spectrum of community engagement, from informing (one way), to shared leadership (decision making rests within the community).**
- **You should strive to work towards building collaboration and two-way communication where communities have a role to play in a program from start to finish.**
- **To make a lasting impact in infodemic management, communities need to own their role in addressing misinformation and promoting resilience.**

Questions to ask:

- How are communities involved in the infodemic management process
- How are you leveraging human centered design approaches to cocreate interventions?
- How are grassroots or bottom-up approaches to infodemic management being integrated into the into top-down infodemic management strategy?
- How can interventions be more specifically tailored to meet the needs of specific communities?
- How do you ensure that infodemic interventions consider or influence offline behavior?
- How does reporting on misinformation or concerns from communities become part of routine engagement in the health system?

Examples or methods:

Participatory evaluation and monitoring, creation of infodemic resilience index, promoting community leadership in infodemic management, utilize social marketing techniques, ensure you have both analog and digital tools to manage infodemic at community level, promote use of community level indicators on misinformation and rumor tracking in regular health system reporting

Three truths about supporting resilience, healthy behaviors and community engagement:

- **Through infodemic management, engaging with communities is a critical component, which goes beyond just listening or one-way communication. Communities have a role to play in infodemic management.**
  - There are many different kinds of communities – physical, digital and hybrid. Don't be afraid of engaging them to author, edit, publish and share content and address infodemic challenges. Consider crowdsourcing and participatory online engagement.
  - Infodemic management interventions that do not involve communities in the design, development or implementation are bound to fail.
  - You will need to make extra efforts to reach and understand communities that are unnetworked or closed.
- **There is a direct relationship between the amount of trust communities have and the access you will have to these communities.**
  - Building trust is a process and not an end state and it cannot be built overnight.
  - Look for indicators or proxies that measure trust or engagement (on a continuum) and work to improve on them. The more you engage, the more trust you build. Measure how they depend on each other.
  - Being resilient means that communities are not relying on health authorities exclusively to receive health information or to get corrections to misinformation.
- **Communities need to own their role in building resilience and addressing the infodemic in their community.**
  - Bottom-up approaches driven by communities need to be met by top-down approaches driven by health authorities.
  - Participatory approaches in design, feedback loops and evaluation involving communities can help identify appropriate and acceptable infodemic interventions that can be scaled up.
  - Go where the people are. There need to be strong linkages between communities and health authorities – more ways through which questions are asked and answered, and available in additional formats and on more channels.

Three truths about supporting resilience, healthy behaviors and community engagement:

- **Understand the social determinants of health in communities and vulnerable populations.**
  - Build on these insights to design infodemic management interventions.
  - Consider the limitations of measuring only the iceberg, when information about offline behavior is limited for specific communities. Utilize novel data collection techniques to fill this gap.
  - Make sure that the interventions you are introducing are not exacerbating or strengthening the equity gaps from digital, gender, health and other perspectives.

- **Prioritize human-centered approaches in the design, development and rollout of infodemic interventions.**
  - One size does not fit all in development of messages and interventions. They need to be tailored for specific communities.
  - Utilize social marketing techniques to frame messages in a way that encourages positive behavior change at individual and community level.
  - Pair messages with social or behavioral interventions because messages by themselves are usually not sufficient to promote behavior change. Consider role of policies to support behavior change linked to public health and social measures.

- **Use community-level indicators in regular health system reporting.**
  - Work with community members to identify indicators wherever possible. Measurement of infodemic indicators at community level can rarely be done top-down as for other health system indicators.
  - Support and promote development of community risk, exposure and resilience indices.

Tools and resources (not exhaustive, so do your own research):

- **Community engagement**
  - https://communityengagementhub.org/wp-content/uploads/sites/2/2020/04/SM-Exchange_day-2-PM.compressed.pdf
  - https://www.who.int/risk-communication/training/Module-B5.pdf
  - https://www.atsdr.cdc.gov/communityengagement/pdf/PCE_Report_Chapter_1_SHEF.pdf
  - https://improvingphc.org/improvement-strategies/population-health-management/community-engagement

- **Design and social marketing**
  - https://academic.oup.com/heapol/article/32/1/110/2555385
  - https://www.ecdc.europa.eu/sites/default/files/media/en/publications/Publications/social-marketing-guide-public-health.pdf
  - https://socialmarketing.blogs.com/r_craiig_lefebvres_social/behavioral_design/
  - https://socialmarketing.blogs.com/r_craiig_lefebvres_social/design-thinking/

- **Community-level metrics and insights**
  - https://www.jmir.org/2011/1/e17/
  - https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(13)60415-8/fulltext
  - https://jech.bmj.com/content/68/7/692
  - https://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1032&context=nutritiondiss
  - https://www.slideshare.net/CDCNPIN/evaluating-social-marketing-campaigns-3566403

Information and data sources:

- Generate yourself.

Learning resources:

https://www.campusvirtualsp.org/en/course/introduction-social-marketing-public-health-2020
https://www.coursera.org/learn/community-organizing - Community Organizing for Social Justice
http://www.uniteforsight.org/social-marketing/
https://www.coursera.org/learn/effective-engagement
https://agora.unicef.org/course/info.php?id=11146
https://www.techsoup.org/community/events-webinars/how-to-rethink-products-and-services-through-equity-design-2020-08-13

Ensure that data-based insights and lessons learned from interventions are applied to future preparedness planning, policy and systems.

- Participate in continuous review and adaptation of related policies and guidance
- Synthesize existing evidence and guidance for specific country contexts

Questions to ask:

- How are you ensuring that analysis, monitoring and evaluation translate into policy?
- How does infodemic management fit into health security, planning and preparedness processes?
- Are infodemic management questions included into knowledge translation platforms in your country?
- Is there knowledge sharing on infodemic management and misinformation across other line ministries?
- Are infodemic management research questions integrated into national research agenda?
- Do you have regular touch-points with the tech sector on guidance and policies related to misinformation?
- How do you keep up with evolving evidence?
- How are you tracking of unintended harm caused by infodemic management approaches?
- What kinds of attributes are you considering when you are transferring methods or interventions to your country?

Examples or methods:

work with multidisciplinary teams to produce evidence-informed policy briefs, collaboration with academia and research community, policy dialogues, involvement of policy makers in development of infodemic management strategy, regular review or infodemic management programme and lessons learned by ethics experts, development of case studies, formal Memoranda of Understanding or alliances with the technology sector, alliances with librarians in dissemination and synthesis of knowledge and evidence

Three truths about applying data-based insights and lessons learned to future preparedness planning, policy and systems:

- **If a successful infodemic management approach was launched in a forest and no one was there to hear it, it won't be embedded into policy.**
  - It is important to measure and report out on results of infodemic management strategies to policy-makers on a regular basis.
  - **It's your job to ensure that infodemic management lives beyond your deployment.** You can do so by making sure that systems are in place, there is documentation how to use the systems and policy-makers are briefed about the importance of infodemic management as part of an integrated public health response system.

- **It is difficult to advocate for budget allocation is you do not have evidence that infodemic management works.**
  - You need to dispel the notion that infodemic management, which may take place online, is free and requires no budget.
  - You need to present infodemic management on par with epidemic management which is what policy-makers understand and can relate to. Make parallels between infodemic management practices and frameworks and the tools, methods and techniques use din epidemic surveillance and response, to allow you to present infodemic management as a evidence-based and systematic practice.

- **You will need to talk about infodemic management in a different language when speaking to policy-makers.**
  - What policy-makers care about may be different from your infodemic management aims.
  - You will need to restructure your conclusions and insights in a way that policy-makers can understand and relate to their own priorities.
  - Different ways of communicating with policy-makers can include hosting policy dialogues, writing policy briefs, involving them in intervention design or policy brief writing.

Three best practices for applying data-based insights and lessons learned to future preparedness planning, policy and systems:

- **Build alliances with not-your-usual suspects.**
  - Infodemic management requires a whole of society response. Therefore, multiple parts of society should be involved when sharing impacts and outcomes of the infodemic management strategy.
  - Build MoU and a working relationship with tech sector, medical associations, librarians/libraries, academia, factchecking organizations, media associations, community leaders/influences, community-based organizations…
  - Different groups might require different levels of formal engagements, but it would be helpful to have SOPs and standards to guide everyone's engagements and to which everyone adheres to.
- **Set your data and insights free!**
  - Publish and publicize insights and recommendations broadly.
  - Plan for public feedback session to validate your insights and recommendations.
  - Offer a way for the public and communities to give comments and suggestions on the infodemic management approach.
- **Concretize *(hat tip to WHO Africa)*.**
  - Create space for infodemic management to be included in regular reporting and public engagements. Create a norm that infodemic management insights are the general public health response, and that policymakers and other stakeholders should eb briefed on it regularly.
  - Embed infodemic management modules and indicators in all relevant aspects of the public health response (for example, health system response, risk communication and community engagement, telemedicine, digital training tools, health care worker apps and tools, etc)

Tools and resources (not exhaustive, so do your own research):

- **Policy development and evaluation**
  - https://www.euro.who.int/en/data-and-evidence/evidence-informed-policy-making/evidence-informed-policy-network-evipnet/evidence-briefs-for-policy.-using-the-integrated-knowledge-translation-approach.-guiding-manual-2020
  - https://www.k4d.ch/guideline-for-policy-briefs-how-to-write-policy-briefs/
  - https://www.cdc.gov/policy/analysis/process/evaluation.html
  - http://www.nhssurveys.org/Filestore/documents/QIFull.pdf
  - https://datainnovation.org/2020/09/policymakers-shouldnt-ask-platforms-to-solve-online-disinformation-alone/

- **Partnerships**
  - Africa Infodemic Response Alliance
  - MAFINDO Indonesia
  - https://meedan.com/blog/database-of-expert-sourced-covid-19-information-for-fact-checkers/
  - https://www.oecd.org/gov/governance-responses-to-disinformation-d6237c85-en.htm
  - https://www.oecd-forum.org/posts/fighting-disinformation-a-key-pillar-of-the-covid-19-recovery

Information and data sources:

- Specific to your country.

Learning resources:

- https://cdc.train.org/DesktopModules/eLearning/CourseDetails/CourseDetailsForm.aspx?courseId=1064819
- https://cdc.train.org/DesktopModules/eLearning/CourseDetails/CourseDetailsForm.aspx?courseId=1064948
- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6196454/
- https://www.paho.org/hq/index.php?option=com_content&view=article&id=14477:knowledge-translation-for-health-decision-making&Itemid=0&lang=en
- https://www.nccmt.ca/knowledge-repositories/search/173
- https://www.coursera.org/learn/healthsystems-policy-research

ONGOING MONITORING, REAL TIME INSIGHTS AND STRATEGY REFINEMENT

Implement a regular and nimble feedback and refinement process to adapt to changing needs of target populations and the nature of the emergency/outbreak and build capacity where there are identified gaps.

- Utilize cross-disciplinary approaches to address gaps in program design and service delivery

Questions to ask:

- How are lessons learned and analysis form each step fed back into the health system, programmes and interventions?
- How are assumptions being checked about populations where there is less data?
- How are you making sure that data sources are sustainably providing data for the future (longitudinal monitoring of trends)?
- How are you making sure that the insights are being provided and used closer and closer in real time?
- What kinds of processes do you have in place to update your infodemic management strategy?
- How are you ensuring that infodemic management processes, outputs and analyses are being captured and documented for future use, and that new staff can easily get up to speed on them?

Examples or methods:

Ensure that infodemic managing is linked to or built into existing strategies, change management processes, knowledge translation processes, knowledge management tools, regular standing meetings on infodemic management issues with public health and response leadership, regular feedback sessions with communities to report back and reflect on infodemic management strategy, small tweaks to service delivery to help health workers address health misinformation

Three truths about adapting to changing needs of target populations and the nature of the emergency/outbreak and building capacity:

- **You need to ensure a regular feedback loop across all steps, to feed insight back for action.**
  - Frequency and format of the insights or feedback will depend on context. You should have a regular rhythm.
  - Be mindful of ethics in data collection, analysis, use and reporting, and monitor for unintended harms of your interventions.
  - Health is a human right and so is access to health information. You should not advocate for any approach that limits this access.

- **Document what you are doing because no one else will.**
  - Build up SOPs, reporting templates and key lessons learned to build a consistent approach across an infodemic management team.
  - If the country health authorities have internal communications or knowledge management systems in place, use them.

- **Sometimes infodemic management solution requires a systems change to fix.**
  - Seize on the role of being an educator and support capacity development on infodemic management of your colleagues.
  - If you identify a barrier to successful infodemic management that requires how health systems deliver services or a change in policy, be clear about what change is needed higher up in hierarchy.

Three best practices for adapting to changing needs of target populations and the nature of the emergency/outbreak and building capacity:

- **Remember that infodemic management box does not exist on the organigramme. So work to build relationships, collaborate and add value.**
  - When your colleagues are successful, you are successful. You can help by identifying an information ened they have.
  - Ensure that infodemic management is built into or linked to existing related strategies; it matters less who owns the document, and more that infodemic management is properly defined, measures and linked to existing activities, goals and structures.
- **Target populations' information needs will change over time and you may need to adjust your planning timeframes.**
  - Do not be afraid to drop indicators that no longer serve you or create new ones.
- **Always consider how infodemic management approaches can be integrated into service delivery, including the interaction between health workers and patients.**
  - Health workers are still considered the most trusted source of health information.
  - You can arm them with techniques and approaches to better address questions or health misinformation.
  - Sometimes policies or practices that can make spreading misinformation easy might be identified. Make suggestions on how to improve on these systematic issues. Example: if health content is only available in official languages, and therefore excludes people that spear or write in that official language.

Tools and resources (not exhaustive, so do your own research):

- **Data use and systems building**
  - https://ssir.org/articles/entry/using_data_for_action_and_for_impact
  - https://www.cdc.gov/publichealthgateway/performance/resources.html
  - https://blogs.worldbank.org/developmenttalk/deliverology-and-all
  - https://blogs.iadb.org/caribbean-dev-trends/en/deliverology-the-art-and-science-of-keeping-campaign-promises/
  - http://www.phf.org/focusareas/qualityimprovement/Pages/Quality_Improvement.aspx

Information and data sources:

- Specific to your country.

Learning resources:

- https://www.euro.who.int/__data/assets/pdf_file/0009/393705/Action-Plan_EN_WHO_web_2.pdf?ua=1
- https://www.euro.who.int/en/about-us/governance/regional-committee-for-europe/past-sessions/66th-session/documentation/working-documents/eurrc6612-action-plan-to-strengthen-the-use-of-evidence,-information-and-research-for-policy-making-in-the-who-european-region
- https://pubmed.ncbi.nlm.nih.gov/17201687/
- https://www.coursera.org/learn/quality-improvement-in-healthcare-organizations