



## Public health taxonomy for social listening on monkeypox conversations

For use in infodemic monitoring and insights generation (updated on 23 August 2022)

### Objective

Millions of daily conversations by members of various communities can provide a better understanding how the multi-country outbreak of monkeypox outbreak is perceived, understood and discussed. Objective of the taxonomy is to monitor millions of conversations related to monkeypox on within thematic categories relevant to public health response. The subtopics are to capture breadth of conversations, and help identify structure and changes in narratives. The taxonomy can be applied to online social media listening, as well as for offline social listening and can facilitate structured integrated analysis of the data to produce infodemic insights and recommendations.

### Background

*What is the difference between social listening for marketing efforts and infodemic monitoring and intelligence gathering?* Social listening is often understood as an approach for monitoring online conversations on specific brands and topics, often used by marketing companies. Social listening is a limited label to use in infodemic management, since integrated analysis is best done with a diverse set of data sources across social, program, behavioral, media, and epidemiological domains. Infodemic monitoring and intelligence gathering consider as many relevant data sources as possible, recognizing they all individually have limitations and biases, but when analyzed in an integrated manner, can yield insights that data sources analyzed in isolation would not provide. Infodemic monitoring and insights generation encompasses systematic **analysis of different data sources**, generation of **intelligence**, turning the intelligence into infodemic **insights** and applying structured judgment and risk matrix approach to generate **recommendations** for action.

### Note to analyst:

- Compare the volume and themes of conversations and dynamics to overall net conversations vs COVID-19 conversations vs monkeypox-specific
- Compare velocity of conversations within monkeypox conversations over time
- Identify monkeypox specific themes of **questions, worries, concerns, information voids, circulating narrative and misinformation**, and crossover with COVID-19
- Focus not only on the content of conversations but also understanding people's reactions, confusion, questions, and conversations about issued health guidance.
- Pay attention to vulnerable populations and stigma, both on MSM, sex workers, inequities, as well as visual analysis of memes and images used associated with monkeypox in the media and social media.
- Refer to WHO-authored papers<sup>1 2</sup> for how to apply and validate its use.

<sup>1</sup>Purnat TD, Vacca P, Czerniak C, Ball S, Burzo S, Zecchin T, Wright A, Bezbaruah S, Tanggol F, Dubé É, Labbé F. Infodemic signal detection during the COVID-19 pandemic: development of a methodology for identifying potential information voids in online conversations. JMIR infodemiology. 2021 Jul 28;1(1):e30971. <https://infodemiology.jmir.org/2021/1/e30971>

<sup>2</sup>Purnat TD, Nguyen T, Ishizumi A, Yau B, White B, Cecchini S, Samuel R, Hess S, Bezbaruah S, Briand S. 2022. Delivering actionable infodemic insights and recommendations for the COVID-19 pandemic response. Weekly Epidemiological Record. 2022 Jul 8; 97 (27), 313 - 324. <https://apps.who.int/iris/handle/10665/359144>



### Taxonomy structure

The taxonomy spans across five categories of topics of conversations:

1. **The cause** – how did the virus emerge and how is it spreading?
2. **The illness** – what do we know about the disease, what are the symptoms and how is it transmitted?
3. **The treatment** – How can it be cured?
4. **The interventions** – What is being done by authorities and institutions?
5. **Conversations about information** – Meta-conversation about guidance, reporting, misinformation and content

## Category #1: How are people talking about the cause

Questions, concerns, confusion, information voids, narratives, mis/disinformation about how the virus emerged and how it is spreading

Topic	Subtopic	Notes for analyst in keyword setup and interpretation
The source of the virus		for example: from animals/ monkeys / small mammals / rodents, zoonoses, smallpox/variola, other Possible speculation about bioengineering Defrosting of tundra/environmental sources (smallpox concerns)
Stigma		(for example: MSM, North-South, Africa, Nigeria)
Spread	Travel  Community contexts	Urban/rural  (example: household, workplace, school/nursery, sexual contacts, healthcare, houses of worship, transportation, sports, festivals, concerts, social gatherings, parties and any other recalled interactions)  Spread via travel, including cross-border, air travel



## Category #2: How are people talking about the illness

Questions, concerns, confusion, information voids, narratives, mis/disinformation about what we know about the disease, how it is transmitted, and what the symptoms are

Topic	Subtopic	Notes for analyst in keyword setup and interpretation
Symptoms	Confirmed	Confirmed: rash, blisters, headache, fever, swollen lymph nodes, muscle aches, back pain, weakness
	Other	(example: confusion with other rash diseases, such as chickenpox for children)
Asymptomatic	Asymptomatic Transmission	(not expected to occur often, but analysis should pick up worries and questions about this)
Means of transmission	Face-to-face exposure	Example face-to-face exposure: through body fluids, including respiratory droplets, also including health care workers without appropriate PPE
	Direct physical contact, skin-to-skin, mouth-to-skin (including sexual contact)	Example contaminated materials: clothing, bedding or utensils that were used by a symptomatic person
	Contaminated materials	Including consumption of illegally traded meats, bushmeat. See this <a href="#">link</a>
	Animal-human contact or consumption of meat	Congenital monkeypox
	Mother-fetus	Sexual transmission
Severity of disease	By age groups	Children, adults < 40, over 40, and elderly
	Complications	Secondary infections: bronchopneumonia, sepsis, encephalitis
Protection from transmission/prevention		effectiveness of condoms (this will not prevent transmission but some people might think so)
Risk	Eating uncooked meat	Example eating meat: Eating uncooked meat or other parts of animals (in particular bushmeat)
	Age	Risk groups may be: children, pregnant women, parents caring for sick children, immunocompromised people, HCW, persons living with HIV/AIDS, sex workers
	Sex	
	Underlying conditions	
	Health-care workers	
	Sex workers	
Caregiver		
Similarities to other orthopoxviruses (e.g. smallpox /r variola virus)		How smallpox and monkeypox are discussed together Poxvirus (e.g. Smallpox/variola virus) Please note that chickenpox is not an orthopoxvirus
Comparators to COVID-19	Risk/severity	How monkeypox and COVID-19 are discussed together
	Similarities to COVID-19	



### Category #3: How are people talking about the treatment

Questions, concerns, confusion, information voids, narratives, mis/disinformation about how the disease can be prevented or cured

Topic	Subtopic	Notes for analyst in keyword setup and interpretation
Current treatment		note: antivirals (Tecovirimat)/clinical care there may be mention of brincidofovir (Tembexa) and brincidofovir (not licensed for smallpox)
Vaccine		note: vaccine for smallpox (Bavarian Nordic's MVA-BN [JYNNEOS/Imvamune/Imvanex]; ACAM2000) monkeypox vaccine : also MVA-BN vaccine stockpiles / strategic reserves
Research and Development		Vaccine nationalism  Supply chain challenges
Treatment myths		

### Category #4: How are people talking about the interventions

Questions, concerns, confusion, information voids, narratives, mis/disinformation about what is being done by authorities and institutions

Topic	Subtopic	Notes for analyst in keyword setup and interpretation
Personal protective equipment		(example: gloves, gown, medical mask and eye protection for HCW, lab workers; mask, sheet/gown for patient)
Quarantine		Isolation and quarantine protocols
Supportive care	Health care Health care equipment	
Personal measures		(example: washing hands, physical distancing, condom use)
Contact tracing		Case isolation duration Close contact definition
Inequalities in intervention access/ use		(example: in access to antiretrovirals, vaccine)
Other	Measures in public settings Travel measures	Note: not yet recommended, but people may already be discussing



## Category #5: How are people talking about information

Questions, concerns, confusion, narratives in the meta-conversation about guidance, reporting, misinformation, content

Topic	Subtopic	Notes for analyst in keyword setup and interpretation
Statistics and data		
Guidance		Reactions, confusion, interpretation of guidance
Mis and disinformation		
Trust in health advice		
Trust in government		

### **Reference on the Monkeypox 2022 outbreak:**

- <https://www.who.int/emergencies/emergency-events/item/2022-e000121>
- <https://www.who.int/emergencies/situations/monkeypox-oubreak-2022>
- [https://www.who.int/health-topics/monkeypox#tab=tab\\_1](https://www.who.int/health-topics/monkeypox#tab=tab_1)