



Evaluating the Utility of the Global Flu View (GFV) platform for Influenza-Like Illness (ILI) Surveillance and Public Health Decision-Making

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INTRODUCTION

Participatory surveillance is an approach to disease detection that allows the public to directly report symptoms electronically and provides rapid visualization of aggregated data to the user and public health (PH) agencies [1]. GFV is a system orchestrator. Collaborating participatory surveillance organizations involved in GFV have developed a shared Application Programming Interface (API) for data exchange among systems [2]. GFV is a 1st of its kind system combining ILI data from 10 countries + Hong Kong across 4 continents for global monitoring of this annual health threat [3]. Thousands of weekly reports are made available for users to explore through graphs, maps, and various filtering tools [2].

Objective: To assess the utility and perception of the effectiveness of GFV on global influenza surveillance and public health decision-making from the perspective of its partners, advisory group and PH researchers

METHODS

Data collection

Instrument: Developed Interview guides

Questions:

- perception of GFV as system orchestrator and data hub
- participants' experience in using GFV
- challenges encountered in using the tool and accessing ILI data
- future directions

Participants: 5 GFV partners representatives, 2 members from advisory group, and 3 PH researchers

Interviewer: Myself as part of the GFV Spark Program

Duration of interview: 30 min Video interview on Zoom + transcripts saved as txt files

Data wrangling

Time codes from Zoom transcripts removed in an online spreadsheet tool

Questions from the interviewer removed

Responses grouped in 3 interviewees categories (GFV partners, Public researchers, advisory group)

Data analysis

Exploratory software:

- Created stop words libraries
- Word clouds
- Word pairs networks (Cluster method: Louvain)

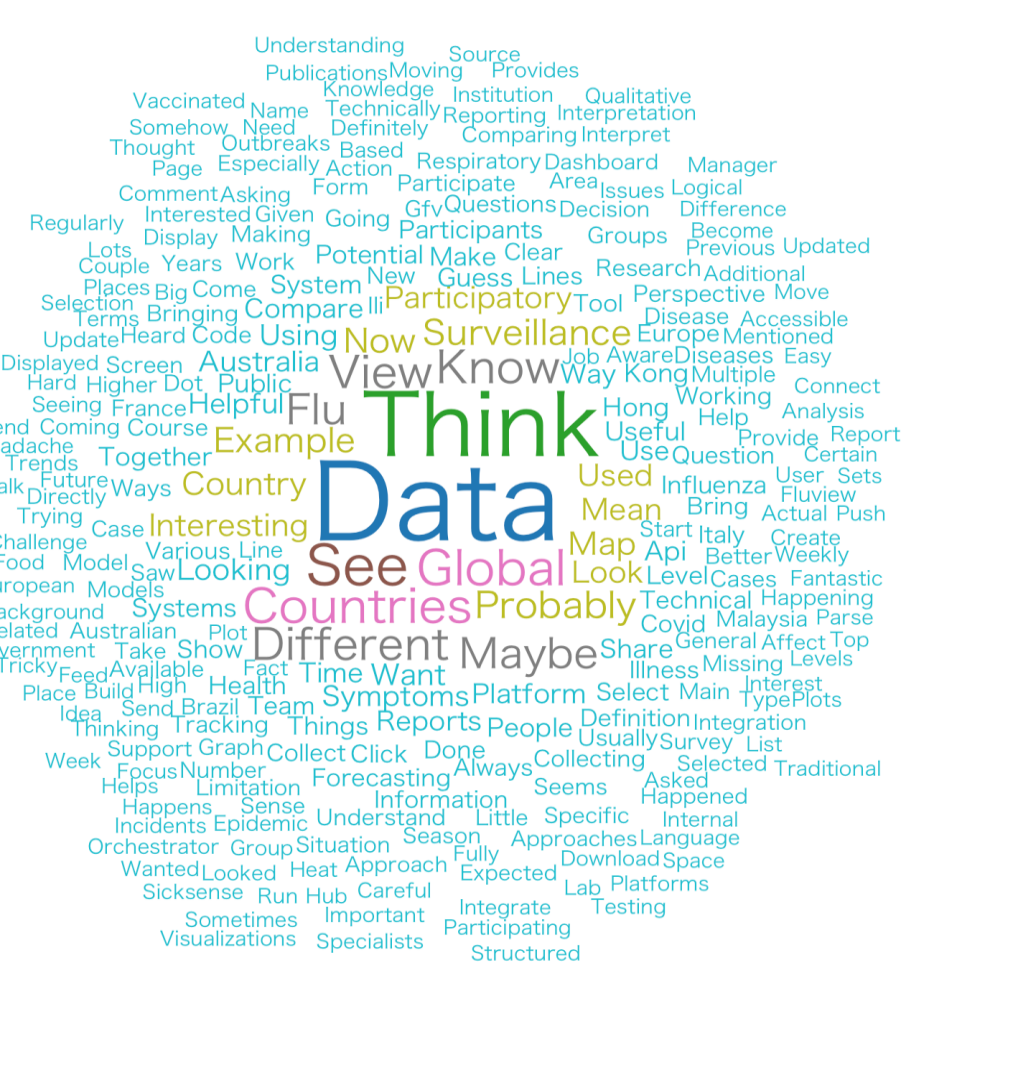
Generative AI platforms: Sentiment analysis of participants' responses using ChatGPT, Claude AI, Perplexity AI and Gemini

- Positive sentiment
- Negative sentiment
- Neutral or uncertain sentiment
- Overall sentiment

RESULTS

Text analysis

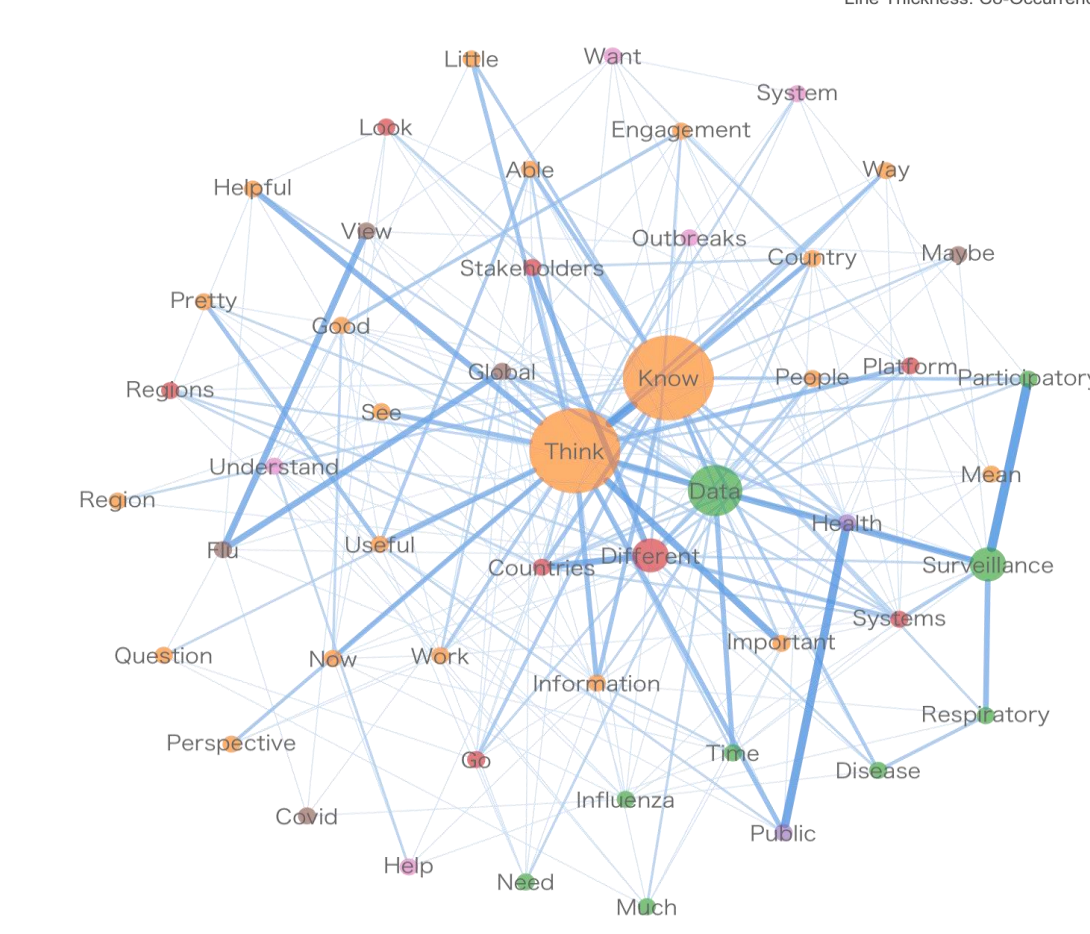
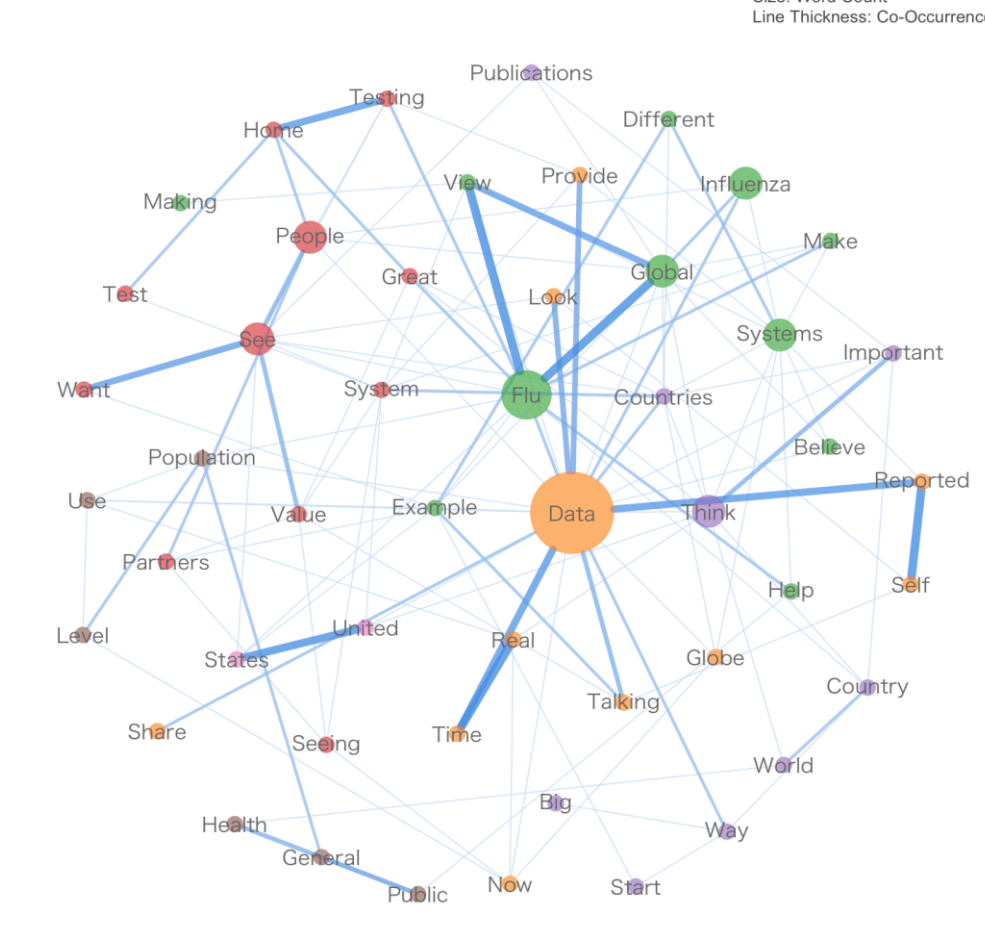
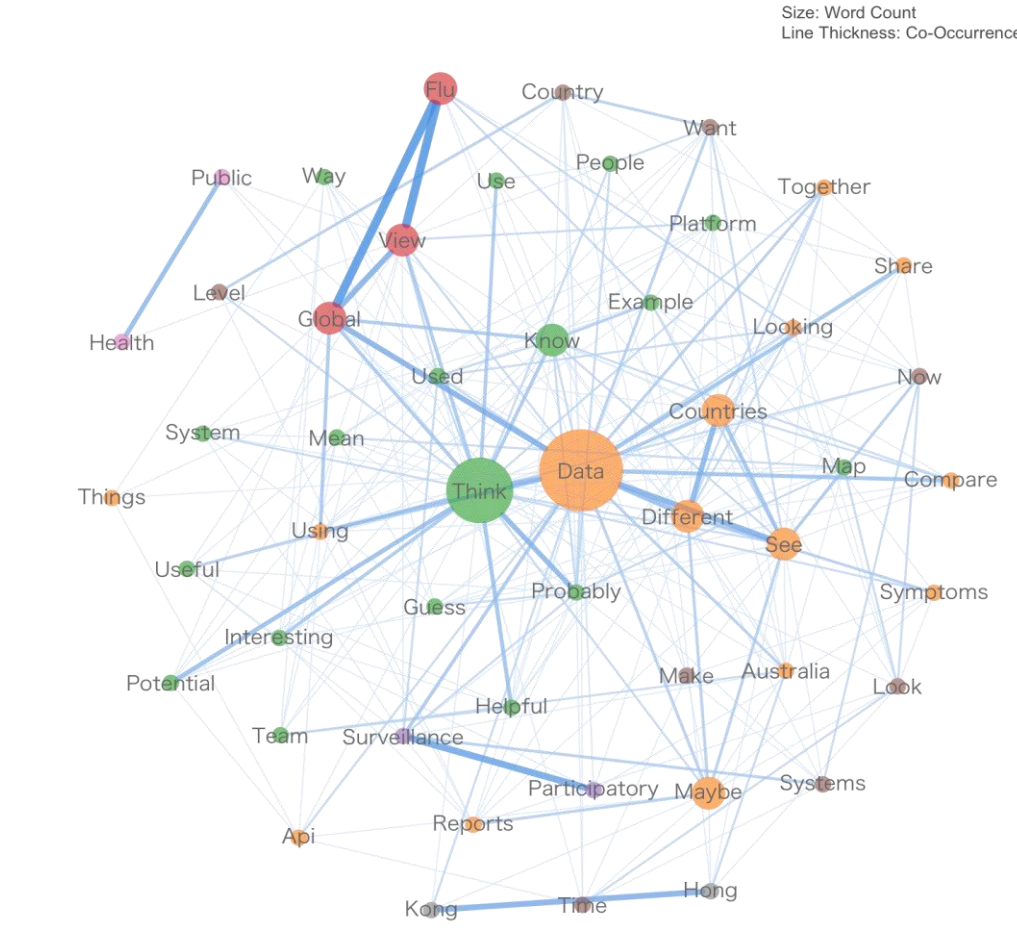
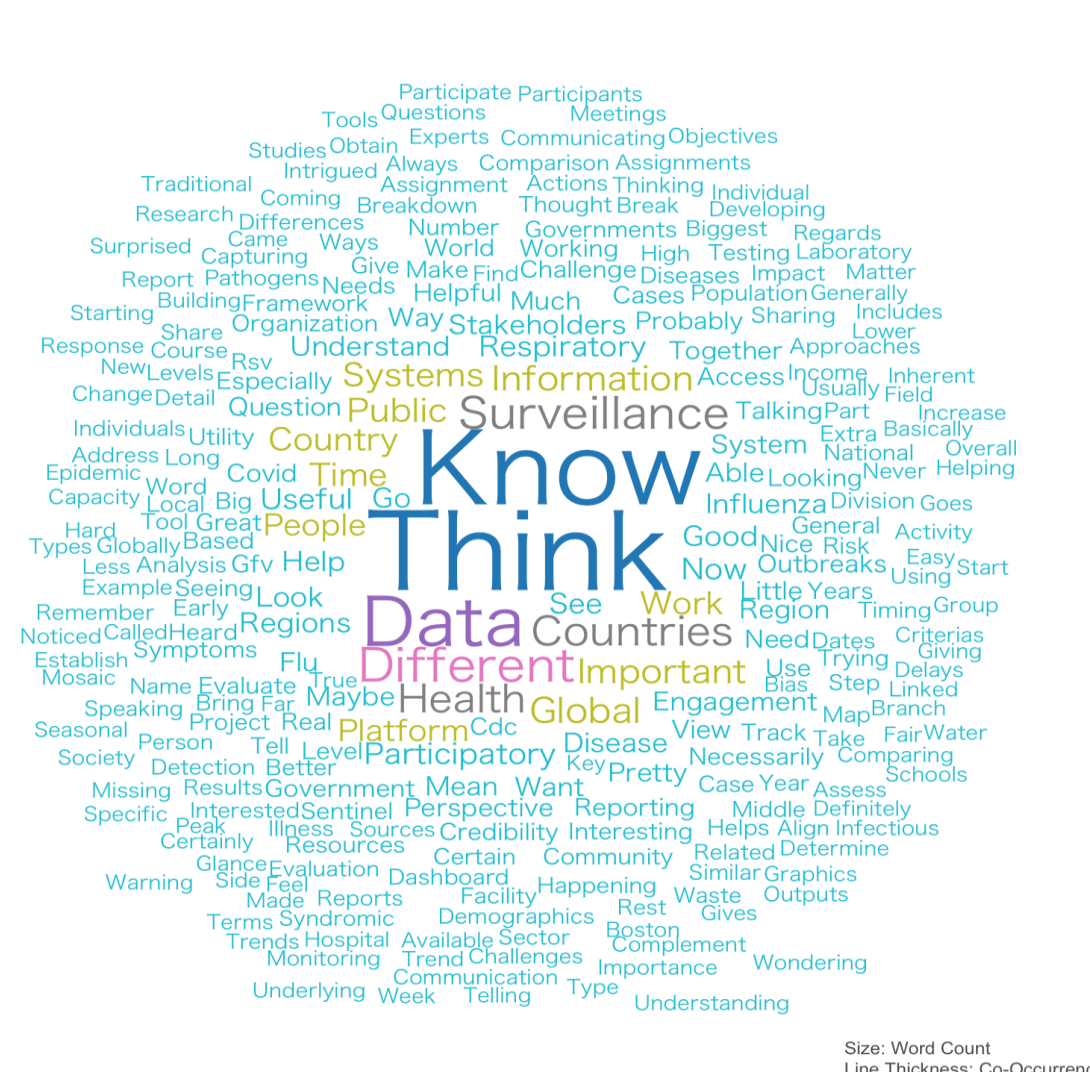
GFV Partners



Advisory group



Public health researchers



Comparison of Sentiments on GFV by Generative AI Platforms: ChatGPT, Claude AI, Perplexity AI, and Gemini

Generative AI platforms/LLM	ChatGPT (GPT-4)	Claude AI (Claude 3.5 Sonnet)	Perplexity AI (GPT-4 Turbo, Claude 3 Sonnet and Opus)	Gemini (Gemini 1.5 Pro)
Positive Sentiment	Appreciation for GFV's role in aggregating and visualizing data	Participants value smooth operation and user-friendly features	Recognized for seamless data integration and visualization	Acknowledged as a 'first of its kind' for global flu tracking
Negative Sentiment	Need for better data integration and visualization improvements	Challenges related to real-time data sharing and standardization	Suggestions for better data utilization and feedback mechanisms	Concerns about the complexity of global data sharing
Neutral or Uncertain Sentiment	Uncertainty about the platform's role in decision-making	Some uncertainty about features and engagement	Questions about the platform's reach and effectiveness	Uncertainty about the impact of the platform on local health responses
Overall Sentiment	Generally positive with recognition of strengths and areas for improvement	Cautious optimism, but clear areas for improvement in visualization	Optimistic about GFV's scientific potential but challenges remain	Positive outlook, but stakeholders seek better communication

The overall sentiment is cautiously optimistic, with recognition of GFV's potential, particularly in aggregating and visualizing global data on influenza-like illness (ILI).

DISCUSSION

Learning experience from discussions with GFV partners

Unified Recognition of GFV's Strengths: GFV has value in aggregating global influenza data and providing smooth, user-friendly visualizations.

There is strong consensus that GFV is useful for PH research and real-time tracking, with each platform highlighting specific strengths, such as global flu tracking (Gemini) and seamless data integration (Perplexity AI)

Common Call for Data Integration and Visualization Enhancements:

Analysis from all platforms emphasize the need for better data integration, particularly in standardizing definitions across countries, and suggest enhancements to the visualization tools to make the data more accessible and actionable .

Variations in Uncertainty and Engagement Concerns:

While positive overall, the platforms reveal differing levels of uncertainty about GFV's current reach and impact.

CONCLUSION

While the GFV platform is widely appreciated for its data aggregation and visualization capabilities, there is a clear need for enhanced data integration, improved visual tools, and better communication to fully leverage its potential for global influenza tracking and public health decision-making.

REFERENCES

- Schmidt C, Phippard A, Olsen JM, Wirt K, Rivera A, Crawley A, Waterman S, Ernst K. Kidenga: Public engagement for detection and prevention of Aedes-borne viral diseases. Online J Public Health Inform. 2017 May 1;9(1):e111. doi: 10.5210/ijphi.v9i1.7694. PMID: PMC5462265.
- Crawley AW, Paolotti D, Dalton C, Brownstein J, Smolinski M. Global flu view: a platform to connect crowdsourced disease surveillance around the world. Intern J of Infect Dis. 2019 Feb 7; 79 (S1)
- Leal Neto O, Paolotti D, Dalton C, Carlson S, Susumpow P, Parker M, Phetra P, Lau E, Colizza V, Jan van Hoek A, Kjelsø C, Brownstein J, Smolinski M. Enabling Multicentric Participatory Disease Surveillance for Global Health Enhancement: Viewpoint on Global Flu View. JMIR Public Health Surveill 2023;9:e46644. DOI: 10.2196/46644

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SCAN FOR DIGITAL VERSION



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