

# The Vaccine Confidence Project™



LONDON  
SCHOOL of  
HYGIENE  
& TROPICAL  
MEDICINE

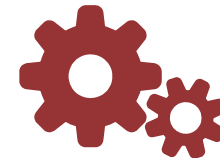


## How social media monitoring can support your vaccine programme

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Vaccine Confidence Project™

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# Classifying Vaccine Sentiment



Vaccine sentiment classification. Definition of Promotional, Neutral, Ambiguous and Negative

## Promotional

- Posts communicate public health benefits or safety of vaccination.
- Contains positive tones, supportive or encouraging towards vaccination.
- Describes risk of not vaccinating.
- Posts refute claims maternal vaccines are dangerous

## Ambiguous

- Content contains indecision, uncertainty on the risks or benefits of vaccination, or is ambiguous.
- Contains disapproving and approving information

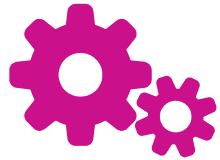
## Neutral

- Contains no elements of uncertainty, promotional or negative content. These are often not sentiments online but rather statements, devoid of emotion

## Discouraging

- Contains negative attitude/arguments against maternal vaccines.
- Contains questions re. effectiveness/safety or possibility of adverse reactions (e.g. links to disability/autism).
- Discourages the use of vaccines.

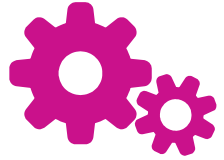
# Classifying Vaccine Sentiment



- 
- Questions/posts contain both promotional and discouraging language, indecision, nuanced language used:

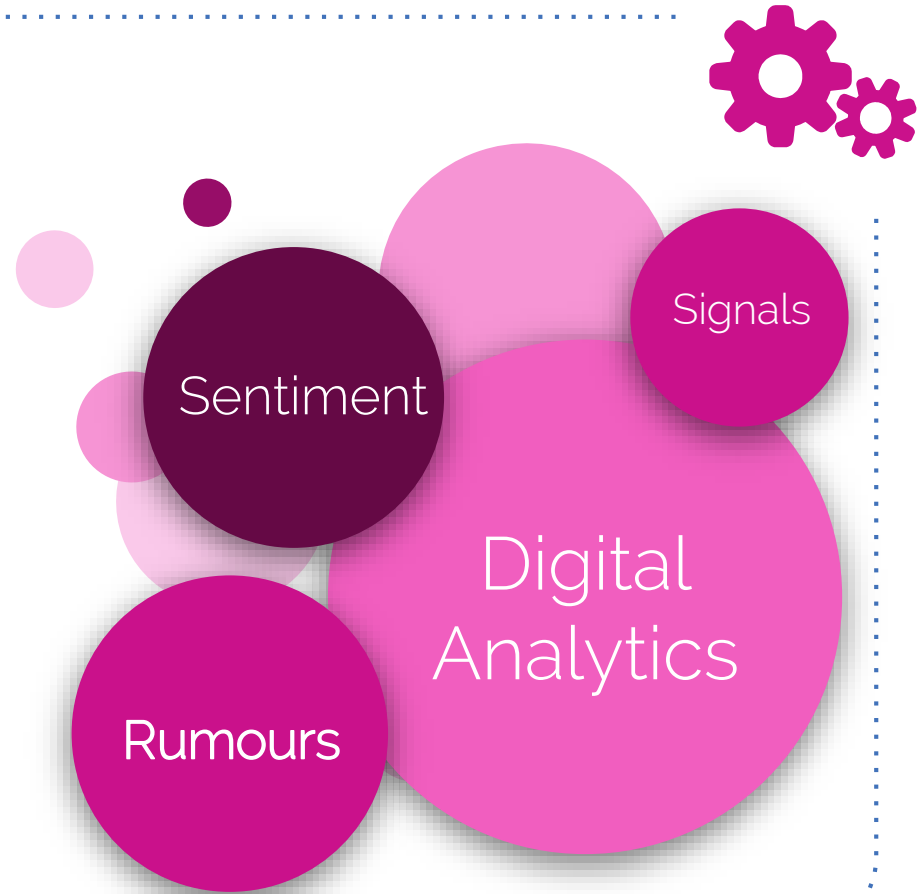
"I got the flu shot in my last pregnancy, but this time around, I've read that vaccines contain mercury. My doctor says vaccines protect from the worst of the flu, but I've seen some scary videos this week...I'm afraid, what do I do?"

# Classifying Vaccine Sentiment

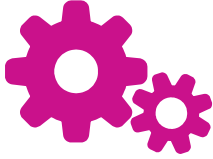


- Seemingly innocent posts can be turned into Ambiguous with a leaning towards discouraging/negative.  
Sometimes with words, and sometimes with hashtags/emojis:
  1. "Thinking about getting the Maternal Flu shot this winter? #LearnTheRisk"
  2. "Is the mercury in vaccines safe? #vaccineswork #VaccinesHarm #VaccineInjury #InformedConsent"
  3. "Women encouraged to get maternal Pertussis jab 🦴🧪👶💉 #InformedConsent"

# Digital conversations: Monitoring conversations about vaccines on social media



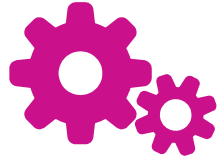
## **Social Media Monitoring:** Supporting your vaccine programme



### **What we will learn:**

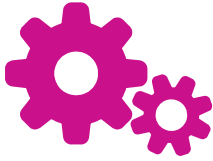
- **Importance, purpose and overall process of media monitoring of communications**
- **Tracking signals, rumours and issues:**
  - What data is available (+ group exercise)
  - What tools are useful (+ group exercise)
  - How to analyse signals (+ group exercise)
- **Case studies:**
- **Questions?**

# Vaccine Sentiment on Social Media



1. What are the key questions that are asked about vaccines via social media in your country?
2. Questions about vaccines trials?
3. Questions about vaccine side effects?
4. Are there groups that share misinformation?

## **Social Media Monitoring:** Supporting your vaccine programme



**How many of you have social media accounts?**

**Which ones?**





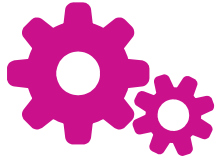


# Media Monitoring

# Monitoring social media conversations about vaccines

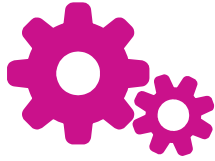
Helps you to:

1. Better understand your audience
2. Focus communications to the right social platforms
3. Spot topics of concern, or rumours
4. Better respond to problems, and build trust and respect
5. Helps you more effectively communicate information about your vaccine programmes, and enable informed decision-making



# Tracking signals, rumours and issues

- **What data is available?**
  - Twitter (engagement data: tweets and retweets)
  - Facebook (engagement data: likes and shares))
  - Google Trends (web search data)
  - Audience response to news articles (shares on social media)



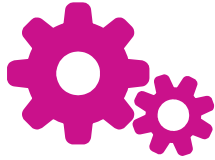
## Tracking signals, rumours and issues

- **What tools are useful for media monitoring?**
  1. Google Trends (web analysis tool)
  2. Mention (social media analysis tool)



## Question:

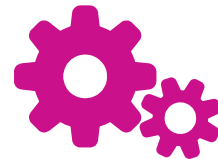
“What are the key issues of concern re. vaccine discussion on social media – in your country?”





# Tracking signals, rumours and issues

- **Let's look at some examples from different countries**
  - Monitoring trending hashtags, searches and influential places that share information about vaccines, can help:
    1. inform your social media strategy
    2. help you catch outbreaks of misinformation



# Tracking signals, rumours and issues

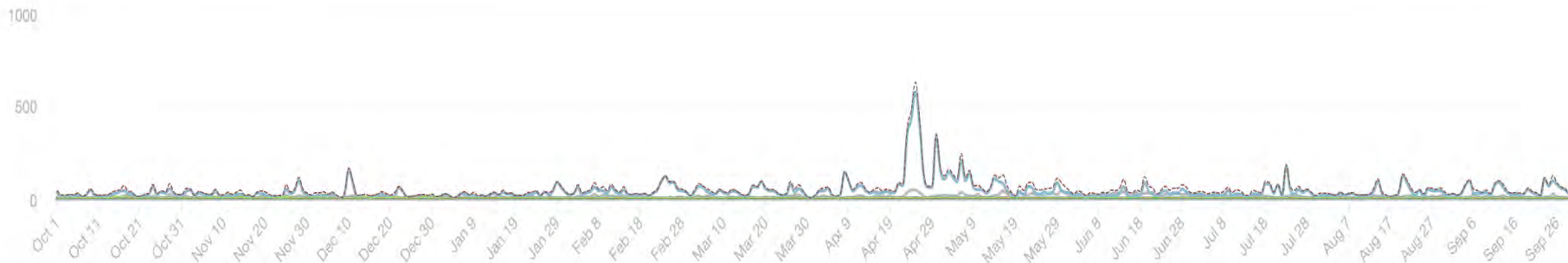


- Country examples: Ghana (social media activity)
  - Twitter (engagement data: tweets and retweets)

**LATEST ACTIVITY**   Filters are not being applied to all sources

Oct 1, 2018 - Sep 30, 2019

Show trend line based on mentions from all sources.  



**BLOGS**

0.2 %

31 Mentions

**INSTAGRAM**

0.2 %

32 Mentions

**FACEBOOK**

0.0 %

0 Mentions

**NEWS**

20.6 %

3,950 Mentions

**TUMBLR**

0.0 %

0 Mentions

**TWITTER**

78.5 %

15.1K Mentions

**FORUMS**

0.6 %

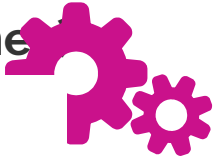
106 Mentions





# Tracking signals, rumours and issues

## Country examples: Ghana (Social media: top 10 cities discussing vaccine)



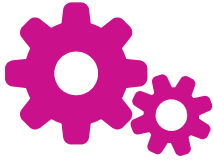
### LEADERBOARD

⚠ Filters are not being applied to all sources

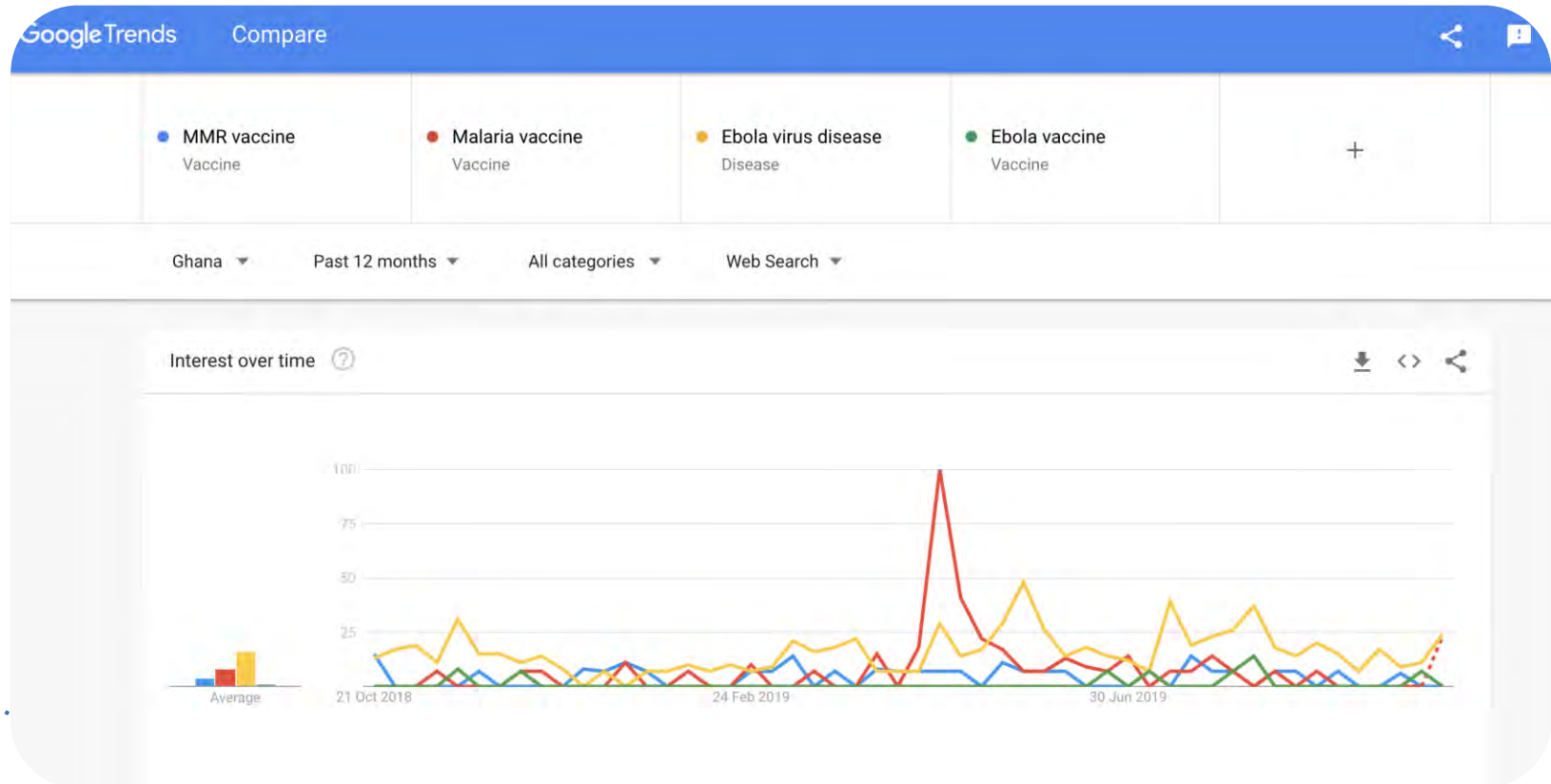
Oct 1, 2018 - Sep 30, 2019



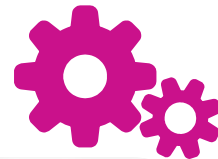
# Tracking signals, rumours and issues



- Country examples: Ghana (Google Trends: comparing web searches) <https://bit.ly/Ghana-GoogleTrends-Vaccines>







# Tracking signals, rumours and issues




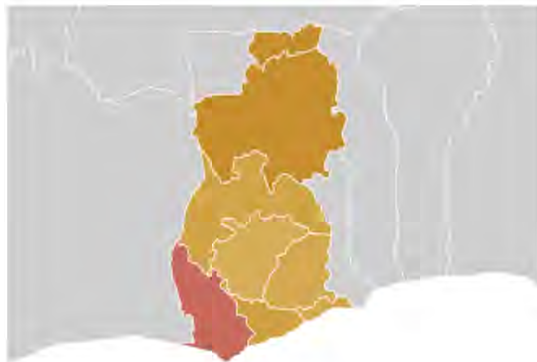
- Country examples: Ghana (Google Trends: [web searches can reflect social media country data](https://bit.ly/Ghana-GoogleTrends-social-media-country-data)) <https://bit.ly/Ghana-GoogleTrends->

Compared breakdown by sub-region

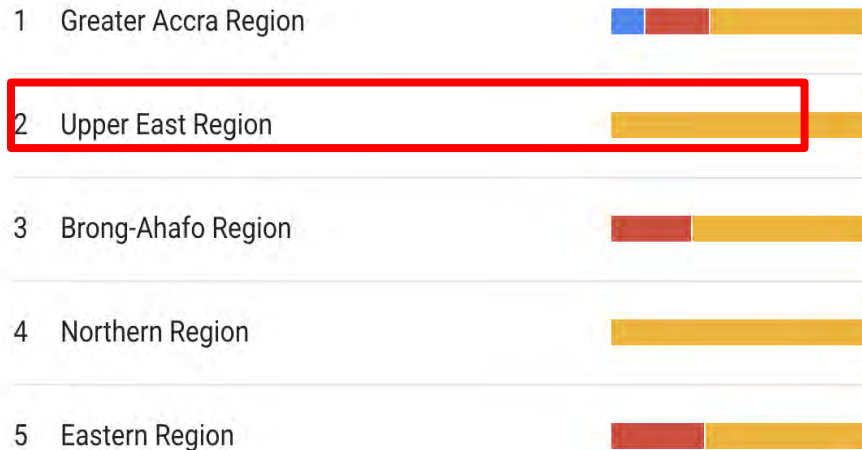
Sub-region   

-  MMR vaccine
-  Malaria vaccine
-  Ebola virus disease
-  Ebola vaccine

Sort: Interest for MMR vaccine 

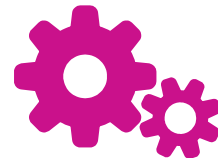


Colour intensity represents percentage of searches [FIND OUT MORE](#)



Showing 1–5 of 8 subregions 

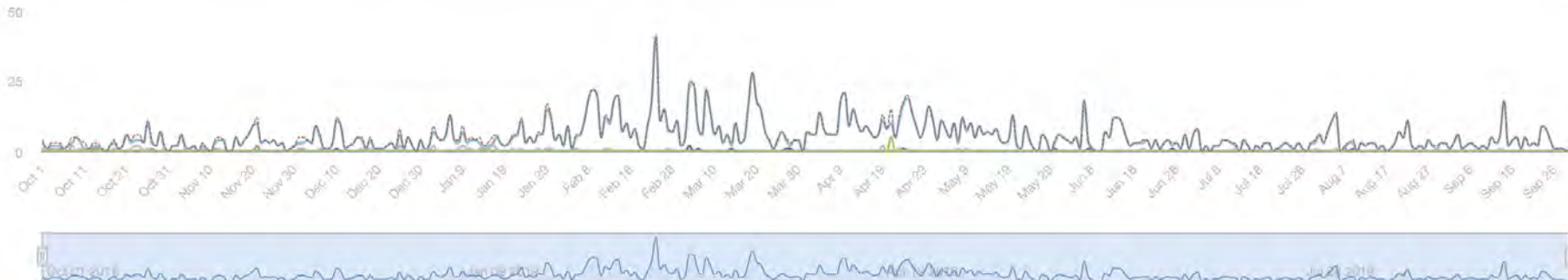
# Tracking signals, rumours and issues



- Country examples: Georgia (social media activity)
  - Twitter (engagement data: tweets and retweets)

**LATEST ACTIVITY** ⓘ ⚠ Filters are not being applied to all sources  
Oct 1, 2018 - Sep 30, 2019

Show trend line based on mentions from all sources.



**FACEBOOK**

0.0 %

0 Mentions

**INSTAGRAM**

0.5 %

10 Mentions

**TUMBLR**

0.0 %

0 Mentions

**BLOGS**

0.9 %

18 Mentions

**TWITTER**

95.3 %

1,895 Mentions

**NEWS**

2.8 %

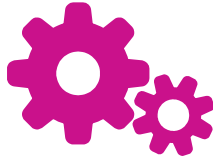
56 Mentions

**FORUMS**

0.5 %

10 Mentions





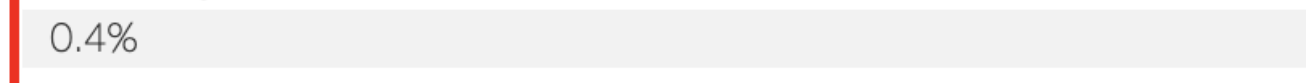
# Tracking signals, rumours and issues

- Country examples: Georgia (Social media: top 10 cities discussing vaccines)

Tbilisi, Georgia

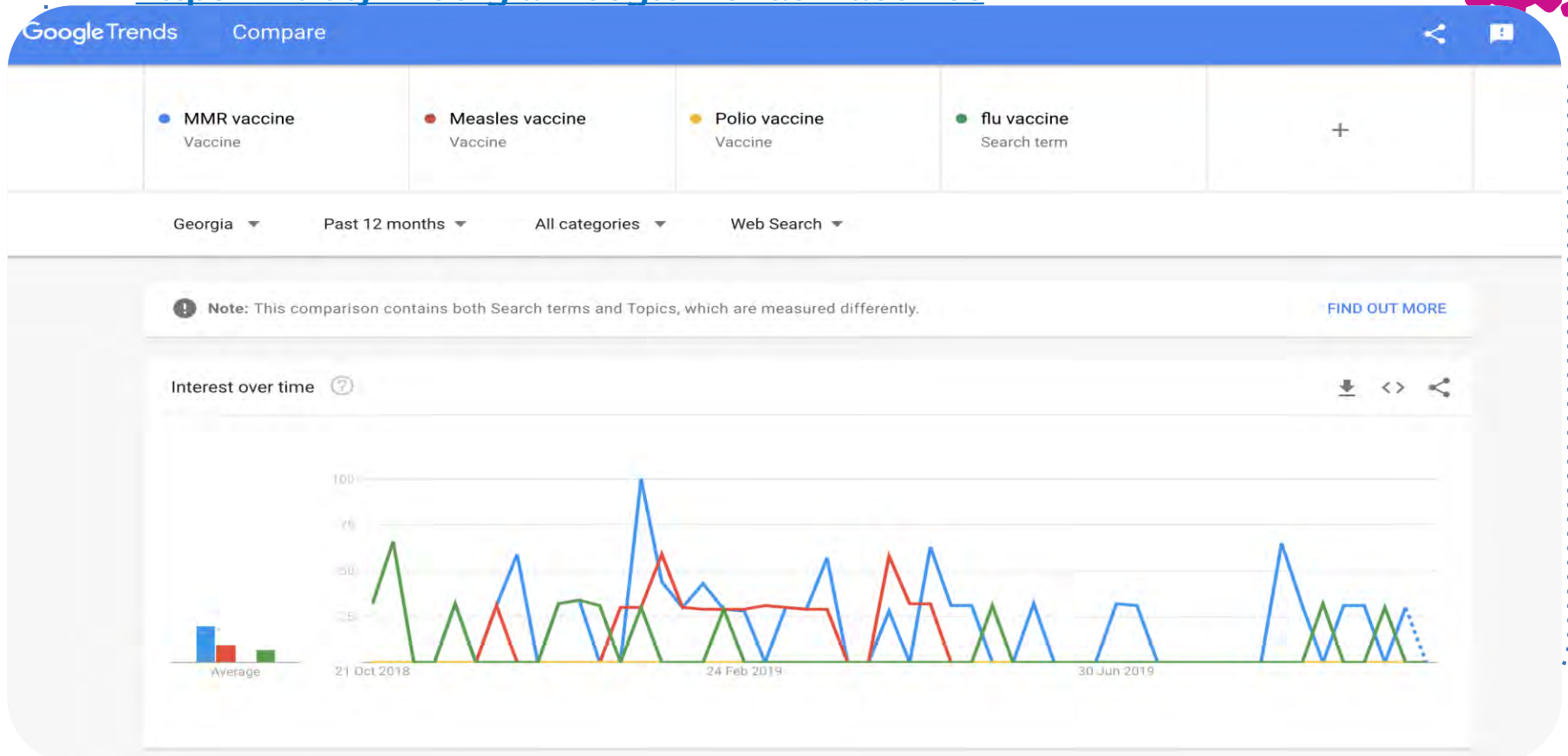
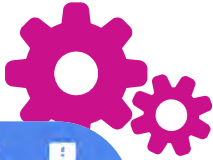


Gori, Georgia

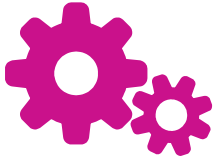


# Tracking signals, rumours and issues

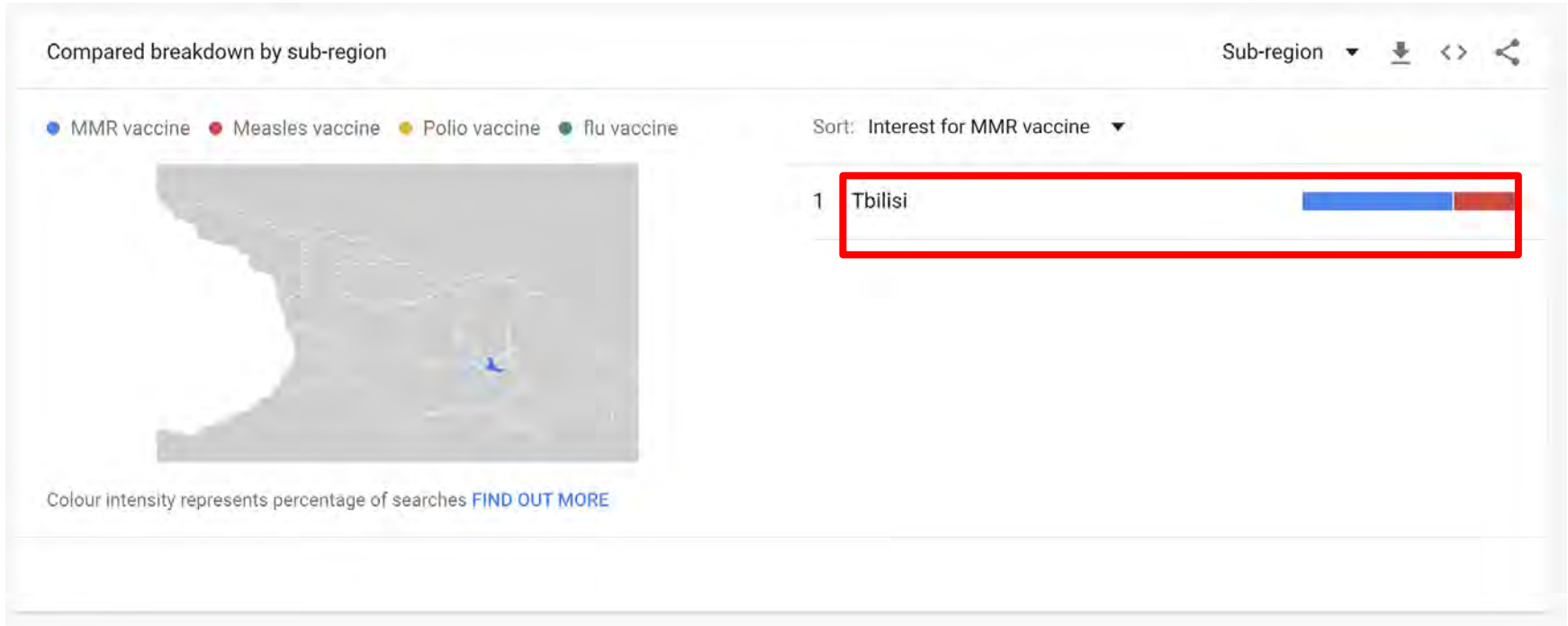
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# Tracking signals, rumours and issues



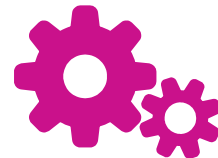
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<https://bit.ly/Georgia-GoogleTrends-Vaccines>








# Tracking signals, rumours and issues

- Country examples: Uzbekistan (social media activity)
- Twitter (engagement data: tweets and retweets)



LATEST ACTIVITY  filters are not being applied to all sources

Oct 1, 2018 - Sep 30, 2019

Show trend line based on mentions from all sources.  



**INSTAGRAM**

1.0 %

4 Mentions

**BLOGS**

1.4 %

6 Mentions

**NEWS**

1.2 %

5 Mentions

**TWITTER**

43.5 %

183 Mentions

**TUMBLR**

0.0 %

0 Mentions

**FACEBOOK**

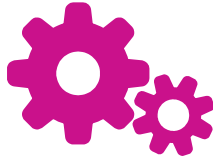
0.0 %

0 Mentions

**FORUMS**


53.0 %

223 Mentions



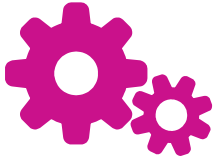
# Tracking signals, rumours and issues

- Country examples: Uzbekistan (keywords discussed in social media about vaccines)

WORD CLOUD  Filters are not being applied to all sources

Oct 1, 2018 - Sep 30, 2019





# Tracking signals, rumours and issues

- Country examples: Uzbekistan (Social media: top 10 cities discussing vaccines)

**LEADERBOARD** Filters are not being applied to all sources

Oct 1, 2018 - Sep 30, 2019

City

Tashkent, Uzbekistan

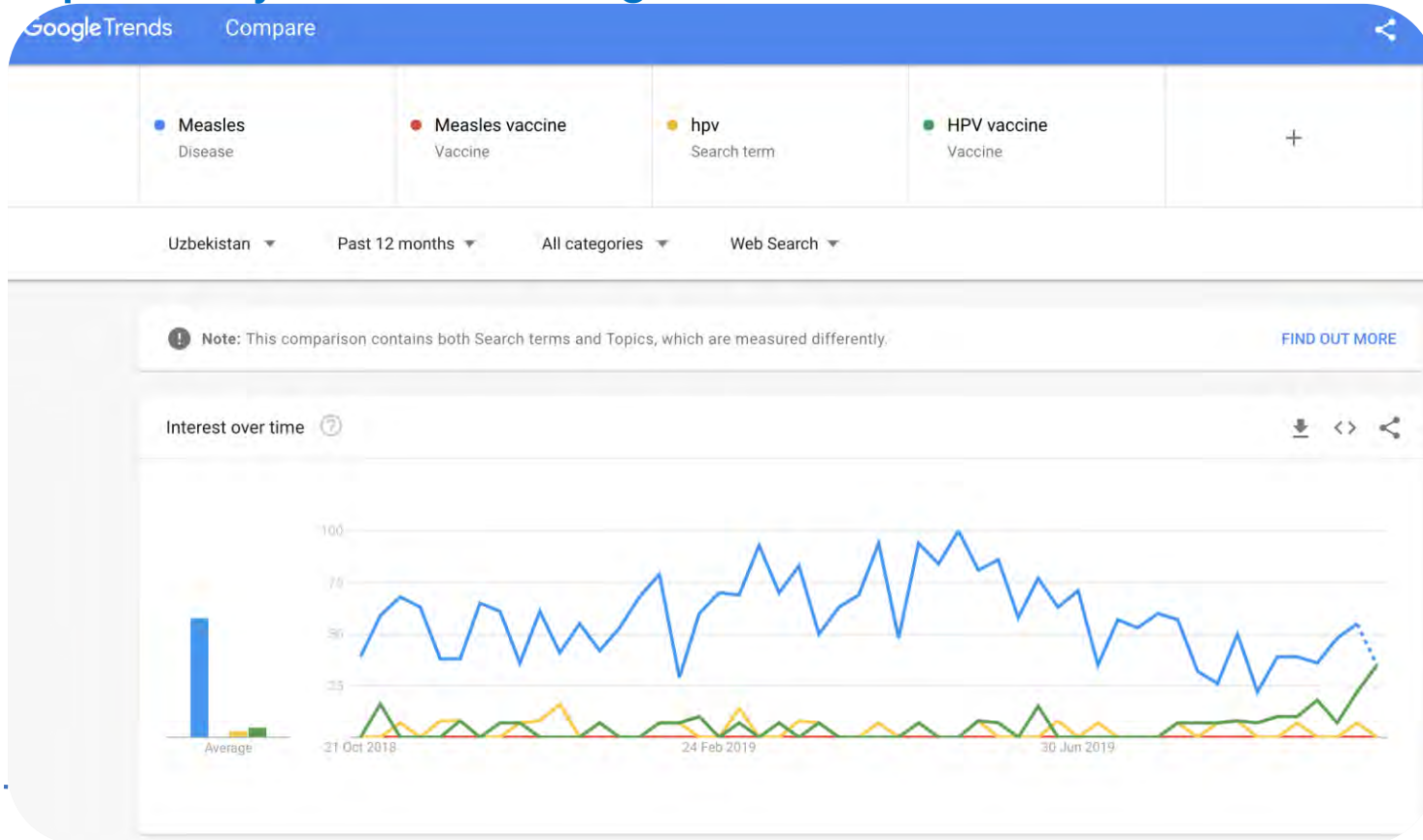
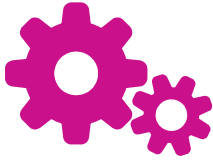
60%

Samarkand, Uzbekistan

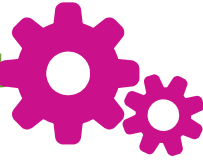
40%

# Tracking signals, rumours and issues

- Country examples: Uzbekistan (Google Trends: comparing web searches)  
<https://bit.ly/Uzbekistan-GoogleTrends-Vaccines>



# Tracking signals, rumours and issues



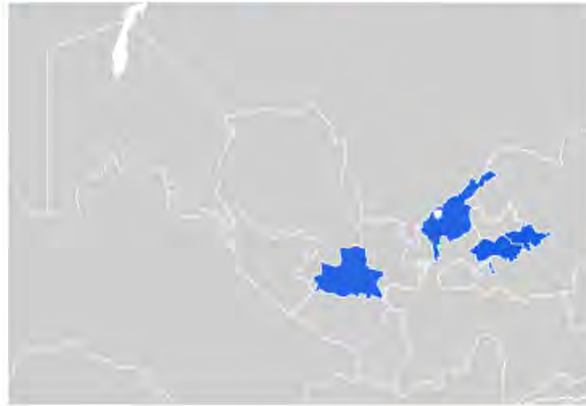
Country examples: Uzbekistan (Google Trends: [web searches can reflect social media country data](https://bit.ly/Uzbekistan-GoogleTrends-social-media-country-data) [https://bit.ly/Uzbekistan-GoogleTrends-](https://bit.ly/Uzbekistan-GoogleTrends-social-media-country-data)

Compared breakdown by sub-region

Sub-region ▾ ⬇ ⏪ ⏩ ⌂

● Measles ● Measles vaccine ● hpv ● HPV vaccine

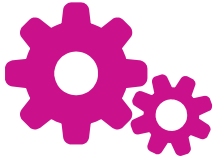
Sort: Interest for Measles ▾





1	Andijan Province	<div style="width: 100%; height: 10px; background-color: #4a7ebb;"></div>
2	Ferghana Province	<div style="width: 100%; height: 10px; background-color: #4a7ebb;"></div>
3	Tashkent	<div style="width: 95%; height: 10px; background-color: #4a7ebb; position: relative;"><div style="position: absolute; right: 0; top: 0; bottom: 0; width: 5%; background-color: #4caf50;"></div></div>
4	Samarkand Province	<div style="width: 95%; height: 10px; background-color: #4a7ebb; position: relative;"><div style="position: absolute; right: 0; top: 0; bottom: 0; width: 5%; background-color: #4caf50;"></div></div>



Colour intensity represents percentage of searches [FIND OUT MORE](#)

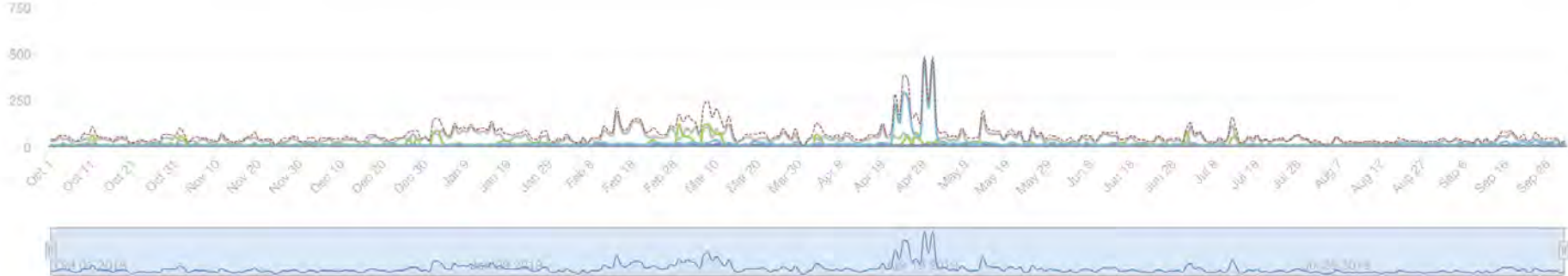
# Tracking signals, rumours and issues



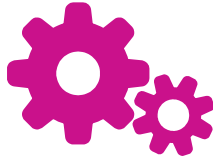
- Country examples: Vietnam (social media activity)
  - Twitter (engagement data: tweets and retweets)

**LATEST ACTIVITY**   Filters are not being applied to all sources  
Oct 1, 2018 - Sep 30, 2019

Show trend line based on mentions from all sources.  



TUMBLR	NEWS	INSTAGRAM	FORUMS	BLOGS	FACEBOOK	TWITTER
0.0 %	60.0 %	0.3 %	13.8 %	2.9 %	0.0 %	22.9 %
0 Mentions	13.5K Mentions	77 Mentions	3,104 Mentions	652 Mentions	0 Mentions	5,163 Mentions



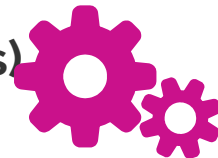
# Tracking signals, rumours and issues

- Country examples: Vietnam (keywords discussed in social media about vaccines)



WORD CLOUD Filters are not being applied to all sources  
Oct 1, 2018 - Sep 30, 2019



# Tracking signals, rumours and issues



## Country examples: Vietnam (hashtags used in Twitter re. vaccines)

**TWITTER TRENDING**   Filters are not being applied to all sources

Oct 1, 2018 - Sep 30, 2019

Top 10 hashtags used in Tweets with estimated number of mentions.

#vaccineswork

34.5%

#bbmastopsocial

19.1%

#bts

8.8%

#truth

5.7%

#vaccines

1.5%

#vaccinate

1.0%

#nottoday

1.0%

#staywellthiswinter

0.5%

#vaccination

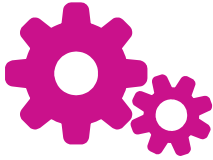
0.5%

#hpv


0.5%



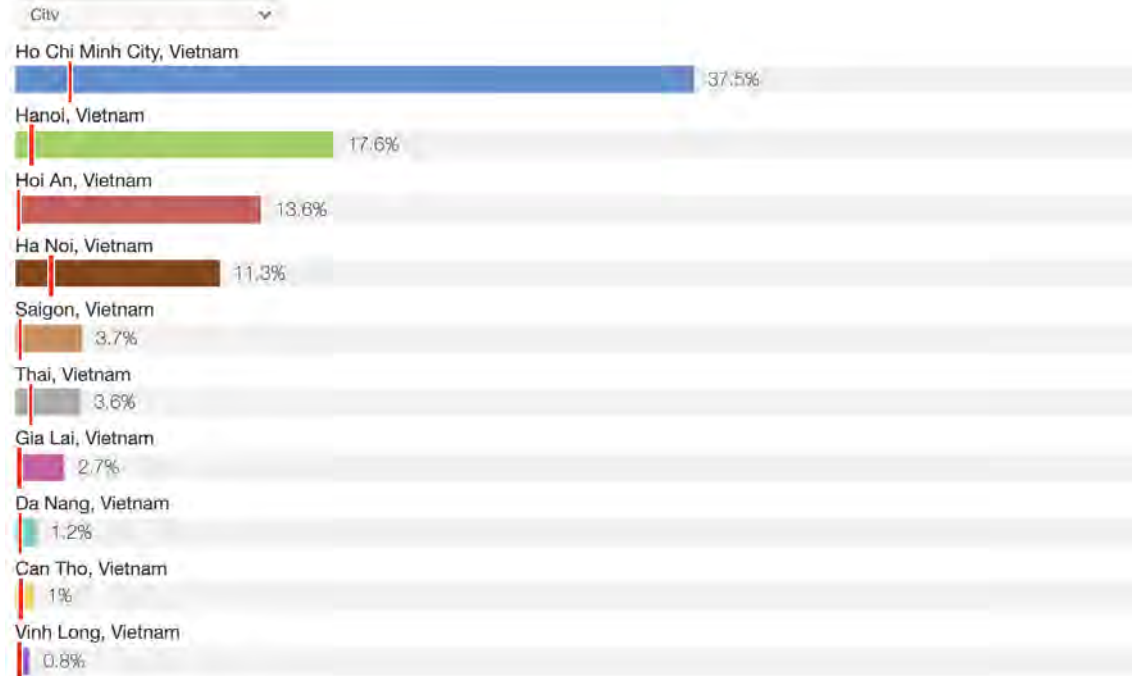
# Tracking signals, rumours and issues



- Country examples: Vietnam (Social media: top 10 cities discussing vaccines)

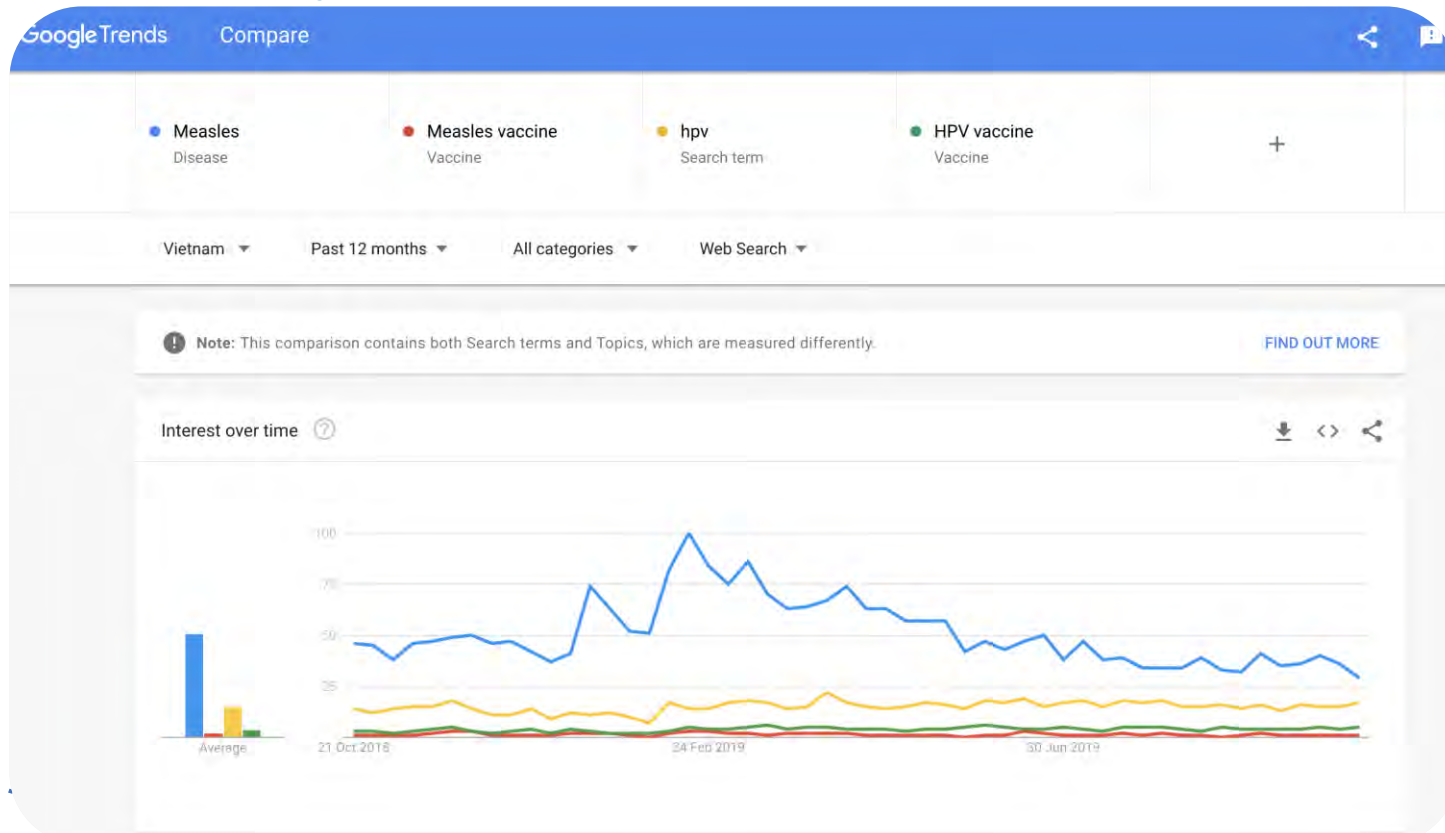
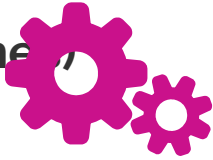
LEADERBOARD  Filters are not being applied to all sources

Oct 7, 2018 - Sep 30, 2019

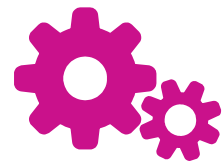


# Tracking signals, rumours and issues

- Country examples: Vietnam (Google Trends: comparing web searches) <https://bit.ly/Vietnam-GoogleTrends-Vaccines>



# Tracking signals, rumours and issues



- Country examples: Vietnam (Google Trends: **web searches can reflect social media country data**)  
<https://bit.ly/Vietnam-GoogleTrends-Vaccines>

Compared breakdown by sub-region

Sub-region

● Measles ● Measles vaccine ● hpv ● HPV vaccine

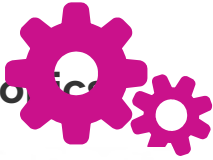
Sort: Interest for HPV vaccine



Colour intensity represents percentage of searches [FIND OUT MORE](#)

Showing 1-5 of 63 subregions

# Google Trends



- You can also subscribe to Google Trends updates, and get reports about topics of concern.

## Google searches for Measles vaccine up 170% in past week (Ghana)

★ Google Trends ▾ To: digitalcoeliac@gmail.com

08/11/2019, 08:57

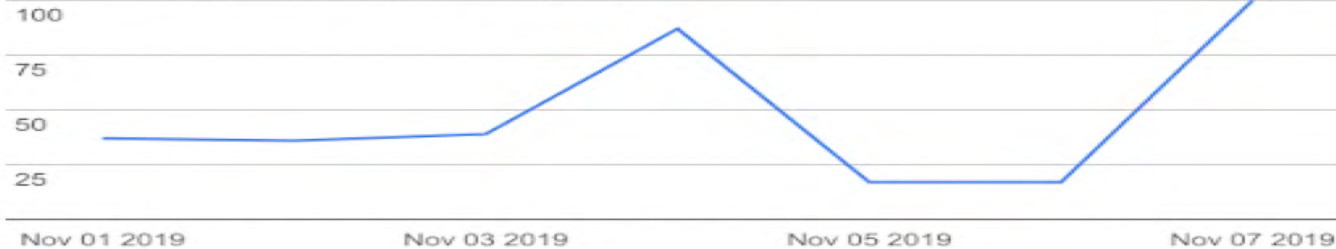
Google Trends

### Google searches for Measles vaccine up 170% in past week

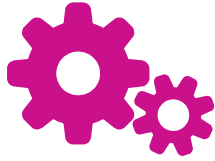


Ghana - [Friday, November 1, 2019](#) - [Thursday, November 7, 2019](#)

The number 100 represents the peak search interest. [Learn](#)



[more](#)



## Exercise

- Go to Google Trends: <https://trends.google.com/>
- Type in the following vaccine in the search box:
  1. Measles (or any other vaccine)
  2. Then type in your country region

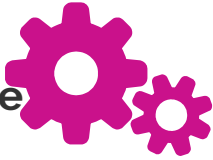
Google Trends Explore

1. Measles  
Disease

2. Worldwide  
Afghanistan  
Åland Islands

All categories Web Search

# Exercise



- Click on the “Compare”, and type in “Ebola” and other vaccine preventable diseases

Google Trends Explore

Measles  
Disease

+ Compare

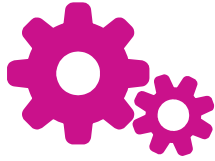
Georgia Past 12 months All categories Web Search

Compare

Measles  
Disease

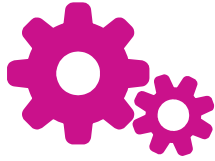
measles  
Search term

Georgia Past 12 months All categories Web Search



## Exercise

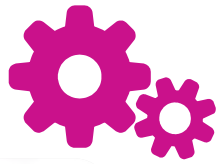
- Discussion
- 1. What did you find for your country?
- 2. Which query had the most search terms in your country?
- 3. Which cities or towns in your country had the most searches?



# Tracking signals, rumours and issues

- **Refresh: What tools are useful?**
  - What can you do after you've used Google ?
    1. Mention (social media analysis tool)





# Tracking signals, rumours and issues

- What other tools are useful overview:
  - Mention (browser tool)  
<https://mention.com/en/>
  - An easy way to monitor the web, listen to their audience and manage social media.

mention

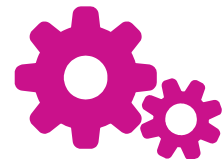
Platforms Solutions Pricing Resources Login

## Drive the conversation

Mention enables brands & agencies to monitor the web, listen to their audience and manage social media

Enter your email... [Start your free trial](#)

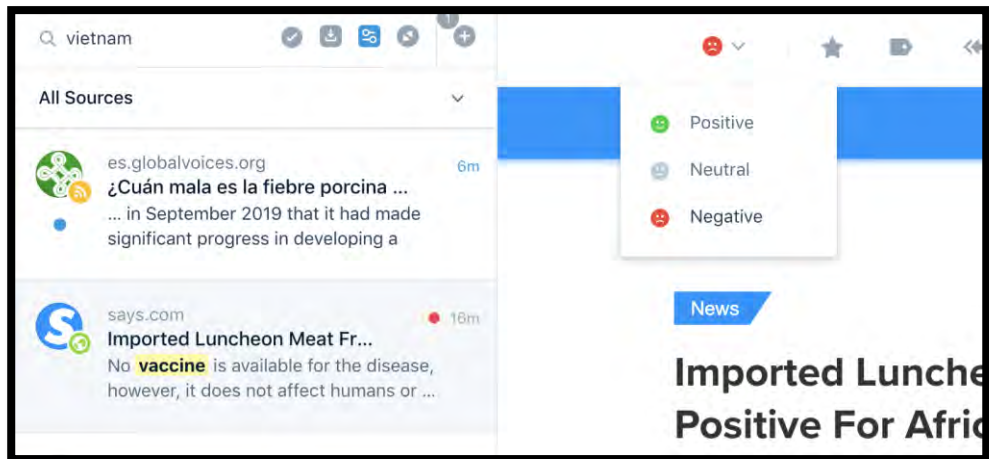
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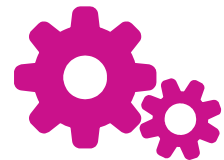
# Tracking signals, rumours and issues

## ○ Mention

- You can mark media with tags, so you can track certain topics
- You can mark news positive, neutral or negative
- This will help to make a later report on attitudes to vaccines in your area

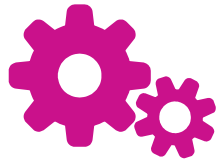


# Examining concepts in strategic communication



## Defining Your Strategy: How to Decide Which Platform is Best for You

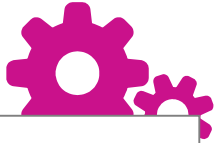
- **What are your goals?**
  - Outline your goals for initiating a social media handle as compared to other, traditional communications approaches.
  - How would launching a social media account help you achieve your objective?
  - What are the key topics of concern around vaccines in your area?
  - Who is your target audience? Who do you hope to reach through social media? Determine and define your primary and secondary audiences.



# Content Strategy

- **Exercise**
  - Write down what key concerns you have about the use of social media in your country
  - Who is your target audience?
  - How would you tailor your response to concerns on different social media platforms?
  - What social media strategies would you use to address concerns?

# Case Study Understanding Public Perceptions on..... Immunization and Vaccine Safety: a lesson learned from MR Campaign in Indonesia

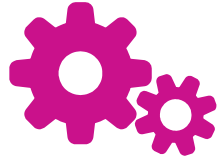


## Focus of the study

- The sub-topics were chosen for their relevance to the immunisation program, and more broadly to the public health context:
  1. religious concerns on immunisation,
  2. conversations around disease outbreaks,
  3. symptoms or health conditions discussed as vaccine side effects, and
  4. the launch of a new Pentavalent vaccine.

# Case Study

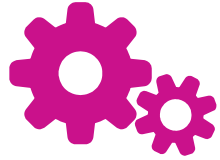
## Understanding Public Perceptions on Immunization and Vaccine Safety: a lesson learned from MR Campaign in Indonesia



- The project extracted 88,368 relevant public tweets from January 2012 to December 2013 in the Bahasa Indonesia language.
- These tweets were filtered using combinations of keywords and phrases that cover the most frequently used terms relevant to each immunisation sub-topic.
- For example, tweets containing the word sakit (“sick”) and either “dpt” (DPT vaccine) or “vaksin (“vaccine”) could be relevant for the sub-topic about side effects.
- The extracted tweets were refined further to limit the amount of irrelevant content, such as jokes, and then mined for insights.

# Case Study

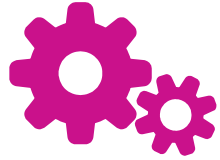
## Understanding Public Perceptions on Immunization and Vaccine Safety: a lesson learned from MR Campaign in Indonesia



### Tweets were analysed for the following:

- **Overall trends** by examining daily, monthly and yearly volumes of tweets from January 2012 to December 2013 (this is one of simplest ways to capture sudden changes in topical engagement and infer causes of significant spikes in volume)
- **Word clustering** or grouping words frequently in the same tweet in order to find patterns in tweet content
- **Shared content** by analysing what content people share from external sources (e.g., news sites) or from their followers as a proxy for public interest
- **Influencers** by identifying the top Twitter accounts that tweet about immunisation (with significant numbers of followers) and the Twitter accounts mentioned most often
- **How information spreads** by analysing how users disseminate and receive tweets based on their social network relationships

# Case Study Understanding Public Perceptions on Immunization and Vaccine Safety: a lesson learned from MR Campaign in Indonesia

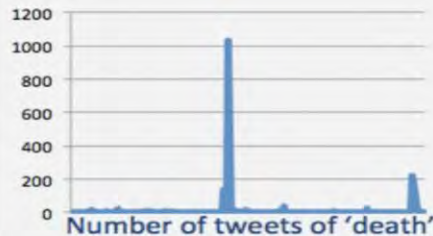


*The figure shows how a spike in tweets expressing concern about death after vaccine could prompt rapid response to correct the spread of misinformation by leveraging a network of Twitter influencers.*

Early warning

Rapid response with actionable plan

Detect people concerned about death after vaccine from Twitter



Disseminate correct information through Twitter via influential users

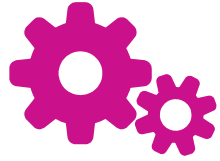
@dr\_piprim  
@dirgarambe  
@blogdokter

⋮





# Case Study Understanding Public Perceptions on Immunization and Vaccine Safety: a lesson learned from MR Campaign in Indonesia



## Conclusions of the study

- Tracking Indonesians' concerns about immunisation as expressed publicly on Twitter revealed the utility of social media to complement existing tools and knowledge of public opinion.
- This study demonstrated how public health practitioners could use real-time insights gained from social media for situation awareness and rapid response, particularly to address the spread of rumours and misinformation.
- Perceptions expressed online on social media may not be equivalent to the opinions expressed offline, as sentiment and tone can shift from one medium to another.
- Comparative research is recommended to assess the representativeness and demographics of online sources.

# Monitoring social media conversations about vaccines

Helps you to:

1. Better understand your audience
2. Focus communications to the right social platforms
3. Spot topics of concern, or rumours
4. Better respond to problems, and build trust and respect
5. Helps you more effectively communicate information about your vaccine programmes, and enable informed decision-making



# Thanks!

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