MEDINFO23

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@DaniHutchinson5

Community sentiment tool: Adapting disease surveillance technology to measure community attitudes to epidemic public health measures.

Danielle Hutchinson

PhD Student

Kirby Institute, UNSW

AIDH IMIA

Background

- Global health pandemic preparedness measures have proven to be poor predictors of pandemic outcomes. Future pandemic planning must include other factors
- South-west Sydney 2021 – the Delta outbreak: "A Tale of Two Suburbs"

VS

Methods

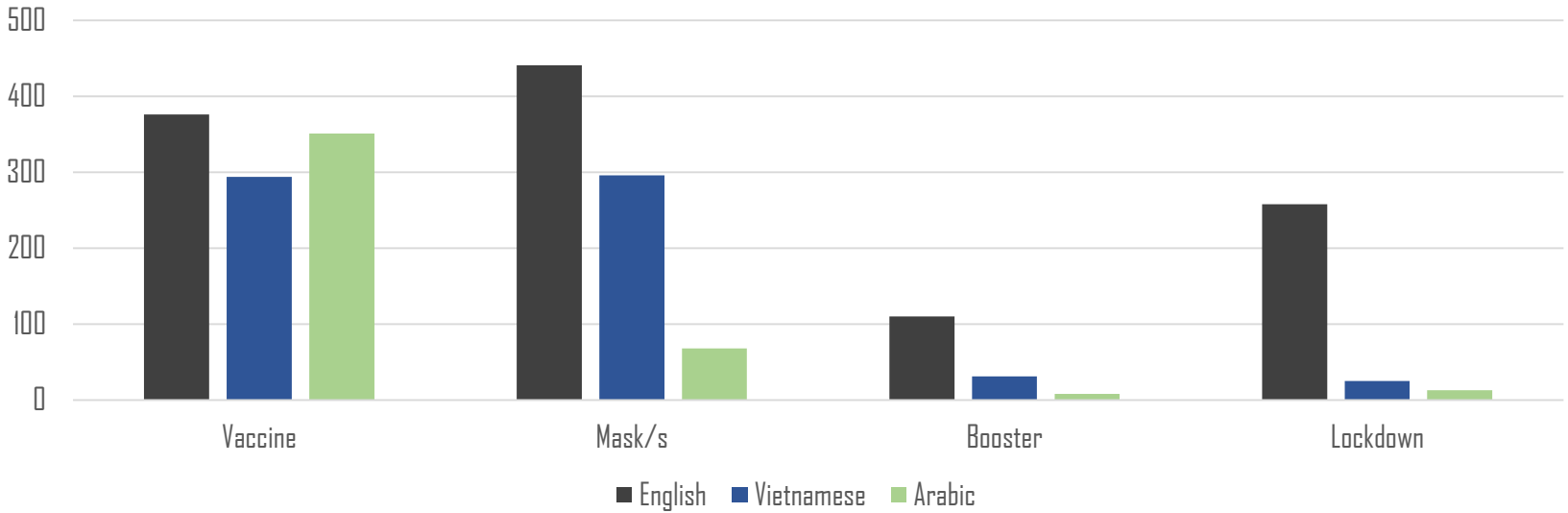
- Search terms: 26 terms, 3 languages
- Search strategy: News media, Twitter
- Results: Mentions, Relevance
- Sentiment analysis: Human vs machine

Results

- Data collected 19 December 2022 – 19 February 2023

	English	Arabic	Vietnamese
Total articles	2780	5764	8763
Relevant %	46.2%	21.5%	24.6%
Total tweets	4576	421	40
Relevant%	77.1%	7.8%	10.0%

Performance of search terms



Results - performance of sentiment analysis (English)

- Inter-rater reliability for human sentiment analysis high – 85.0% news media and 86% Twitter. Poor performance of Azure.

	News		Twitter	
	human	machine	human	machine
Neutral	278	91	69	89
Positive	54	167	134	124
Negative	45	119	159	164

Concordance				
	News		Twitter	
Neutral	68	24.46%	14	20.29%
Positive	32	59.26%	60	37.74%
Negative	19	42.22%	46	34.07%

Limitations

- Use of Twitter in cultural and language groups that prefer other forms of social media
- Use of "off-the-shelf" sentiment analysis tool - sarcasm
- News media – broad search rather than focusing on local newspapers

The EPIWATCH observatory

- EPIWATCH scans large amounts of global open-source data to identify early warning signals of potential epidemics. Uses machine learning and natural language processing. Epidemiology and software teams.

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EPIWATCH

UNSW Kirby Institute