Common digital health story?

Common digital health story?

Problem

Common digital health story?

Problem

Data

Common digital health story?

Problem

Data

Digital Health Solution

Common digital health story?

Problem

Data

Outcomes, evaluation

Digital Health Solution

Comprehensive integrated vaccine safety clinical management, safety surveillance & signal detection

Established national leading spontaneous AEFI surveillance system

Victoria contributes >40% of all national AEFI reporting.

SAEFVIC

Specialist immunisation services for follow-up of reported AEFI

Urgent clinical support for serious AEFI

VICTORIA State Government | Department of Health

Signal detection systems using multi-faceted data interrogation of routine health data sources

Includes background rates, & monitoring of healthcare datasets (ED, Aged care, GP)

SAFESig

Active (solicited) post-vaccination SMS-based survey

SMS sent post vaccination (day 3, 8 & 42) asks if the person experienced an AEFI

AusVaxSafety An NCIRS led collaboration

Alert Advisory Group (AAG)

Systematic escalation pathway for serious AEFI, signal events or issues that may bring risk to the COVID vaccination program

VICTORIA State Government | Department of Health

Spontaneous AEFI surveillance

Victorian Specialist Immunisation Services (VicSIS)

Integrated safety signal detection

Post-vaccination active surveillance

Serious AEFI Urgent escalation

N.W. Crawford, H. Clothier, K. Hodgson, G. Selvaraj, M.L. Easton, and J.P. Buttery, Active surveillance for adverse events following immunization, Expert Review of Vaccines 13 (2014), 265-276.

N.W. Crawford, H. Clothier, K. Hodgson, G. Selvaraj, M.L. Easton, and J.P. Buttery, Active surveillance for adverse events following immunization, Expert Review of Vaccines 13 (2014), 265-276.

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N.W. Crawford, H. Clothier, K. Hodgson, G. Selvaraj, M.L. Easton, and J.P. Buttery, Active surveillance for adverse events following immunization, Expert Review of Vaccines 13 (2014), 265-276.

T. Harper and K. Attwell, How Vaccination Rumours Spread Online: Tracing the Dissemination of Information Regarding Adverse Events of COVID-19 Vaccines, International Journal of Public Health 67 (2022).

Laemmle-Ruff I, Lewis G, Clothier HJ, Dimaguila GL, Wolthuizen M, Buttery J and Crawford NW (2022) Vaccine safety in Australia during the COVID-19 pandemic: Lessons learned on the frontline. *Front. Public Health* 10:1053637. doi: 10.3389/fpubh.2022.1053637
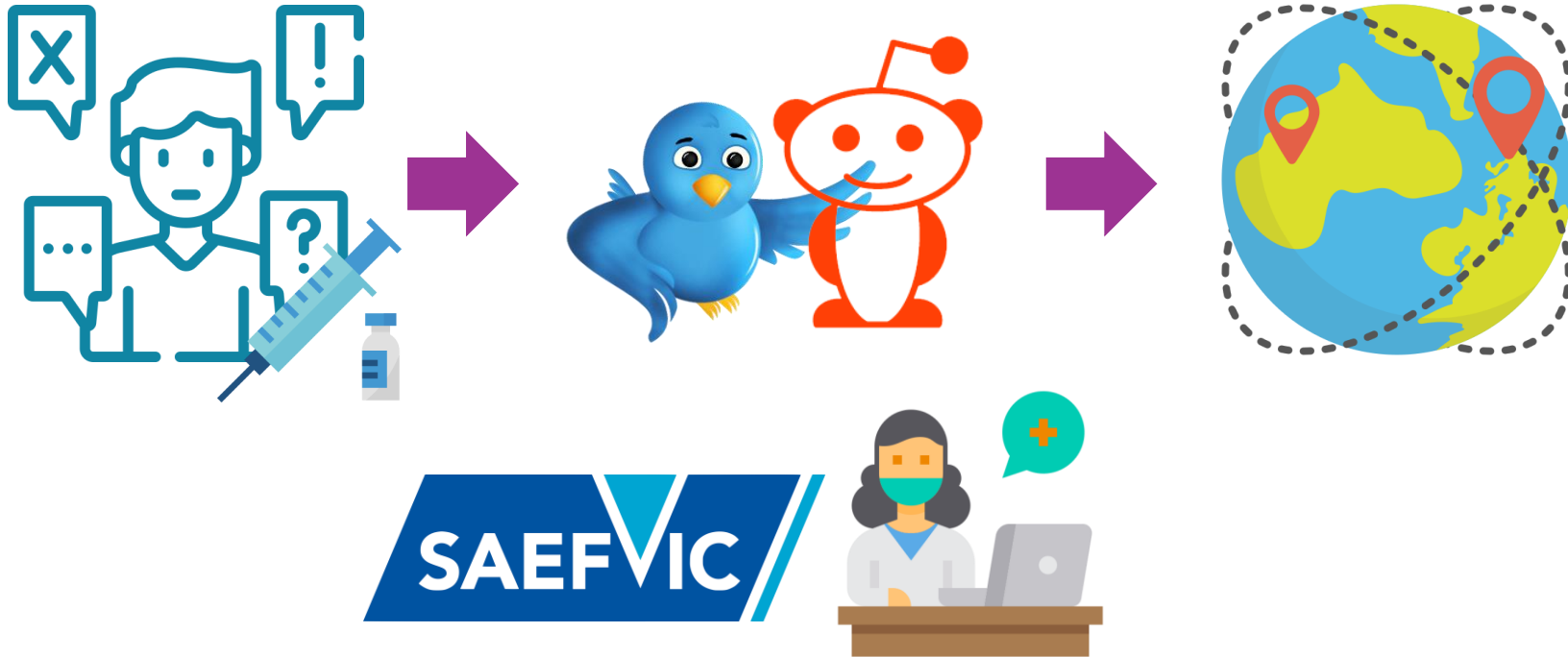
A digital health story: **Methods**

A digital health story: **Methods**
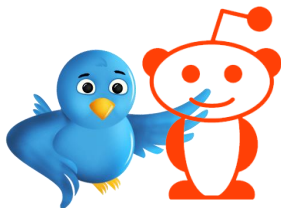
Vaccine Infodemic

A digital health story: **Methods**

Vaccine Infodemic

Social Media

- 353,218 Reddit posts collected
- January 2021 to June 2022
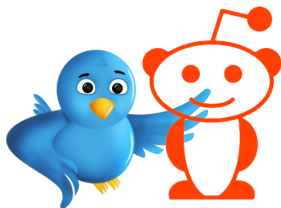- Preprocessed, cleaned

A digital health story: **Methods**

Vaccine Infodemic

Social Media

- Pretrained COVID-Twitter BERT V2 ML

- Finetuned on SAEFVIC Reactions

A digital health story: **Methods**

- Topics generated through BERTopic
- Additional classification by clinician based on AEFI

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Insights on Public Concerns

A digital health story: **Methods**

- Heuristic for evaluating health data portal

- Interdisciplinary experts and end users

Interdisciplinary Experts

Insights on Public Concerns

A digital health story: **Methods**

- consumer partner
- human-computer interaction
- consumer engagement
- communication & social science
- clinical education & public engagement

Interdisciplinary Experts

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Insights on Public Concerns

A digital health story: **Methods**

- Review social media public concerns

- Consider concerns during evaluation

- Provide feedback to improve

Interdisciplinary Experts

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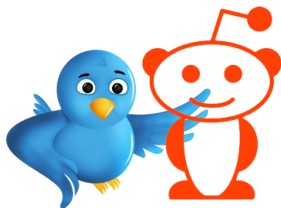@unimelb health students

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Insights on Public Concerns

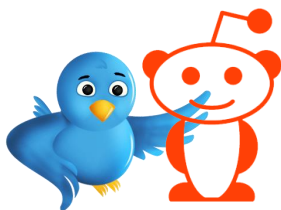# A digital health story: Results

A digital health story: **Results**

Vaccine Infodemic
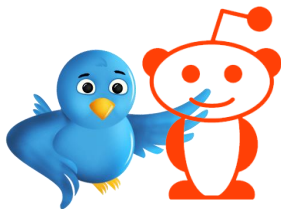
Social Media

- Most discussed:

  Myocarditis (inflammation of the heart muscle)

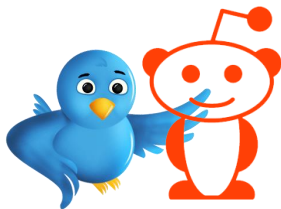 Pericarditis (inflammation of the saclike tissue surrounding the heart)

A digital health story: **Results**

Interdisciplinary Experts

Insights on Public Concerns

Orientation
Flexibility and Efficiency of Use
Spatial Organization
Aesthetic and Minimalist Design/Remove the Extraneous
Visibility of System Status
Information Coding
Recognition rather than Recall
Match between System and the Real World
Consistency and Standards
User Control and Freedom

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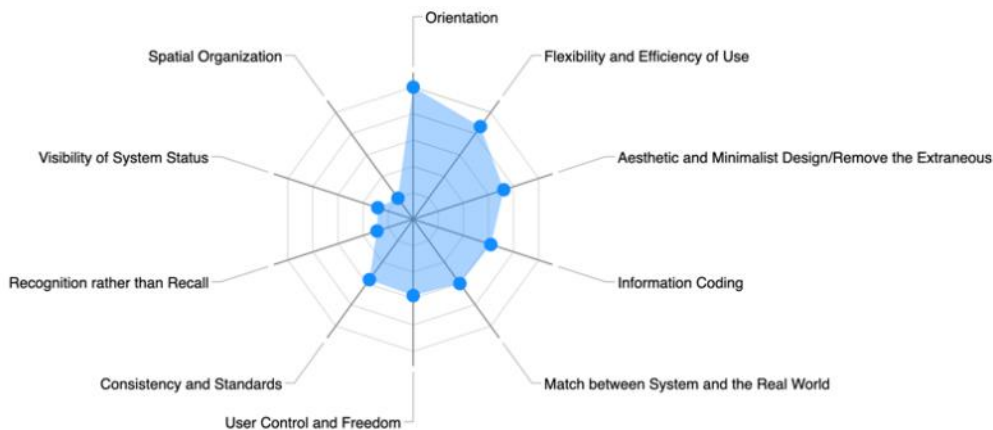
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A digital health story: Results

0-4 Highest Severity

Heuristic	Mean
Visibility of System Status	2.0
Spatial Organization	1.8
Aesthetic and Minimalist Design	1.4
Recognition rather than Recall	1.4
Match between System and the Real World	1.2

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Insights on Public Concerns

A digital health story: Results

Social media data guided evaluation

There is a huge amount of data available, much more than would be necessary for the average consumer

lay readability of the text could be improved for people to understand the risk-benefit ratio of myo-peri

Interdisciplinary Experts

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Insights on Public Concerns

A digital health story: **Results**

Social media data guided evaluation

Decrease level of detail in visualisations

Develop a 'deck of graphs' that could be presented when public concerns are identified

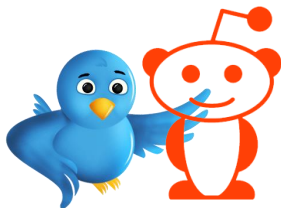**Interdisciplinary Experts**

Insights on Public Concerns

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Interdisciplinary Learning Health System

Vaccine Infodemic

Social Media

Interdisciplinary Experts

Insights on Public Concerns

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Thank you!

Muhammad Javed

Hazel Clothier

Jo Hickman

Dan Petrovic

Francesca Machingaifa

Jessica Kaufman

Sedigh Khademi Habibabadi

Chris Palmer

Jim Buttery

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Thank you!

Any questions, recommendations?

in gldimaguila

Muhammad Javed

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Jessica Kaufman

Sedigh Khademi Habibabadi

Chris Palmer

Jim Buttery

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