

## PANEL DISCUSSION

### Informatics and new vaccine implementation: Monitoring confidence, effectiveness and safety, and responding

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## Values and experiences inform decisions



MISINFORMATION

BELONGING

CHOICE

PURITY

TRAUMA

MISTRUST

RACISM

POOR PROCESS

- Hornsey, M. J., et al Health Psychology, 37(4), 307.
- Hooker and Leask, Journal of Bioethical Inquiry 2020;17(4):581-9.
- Leask J, Chapman S, Hawe P, Burgess M. Vaccine 24 (49-50):7238-7245, 2006.
- Amin, A. B., Bednarczyk, R. A., Ray, C. E., Melchiori, K. J., Graham, J., Huntsinger, J. R., & Omer, S. B. (2017) Nature Human Behaviour, 1(12), 873-880.
- van der Linden, S. Nat Med 28, 460–467 (2022)
- Christou-Ergos, M., Wiley, K. E., & Leask, J. Public Health, 2023;216:1-6
- Kristy Crooks, Kylie Taylor, Hunter New England LHD

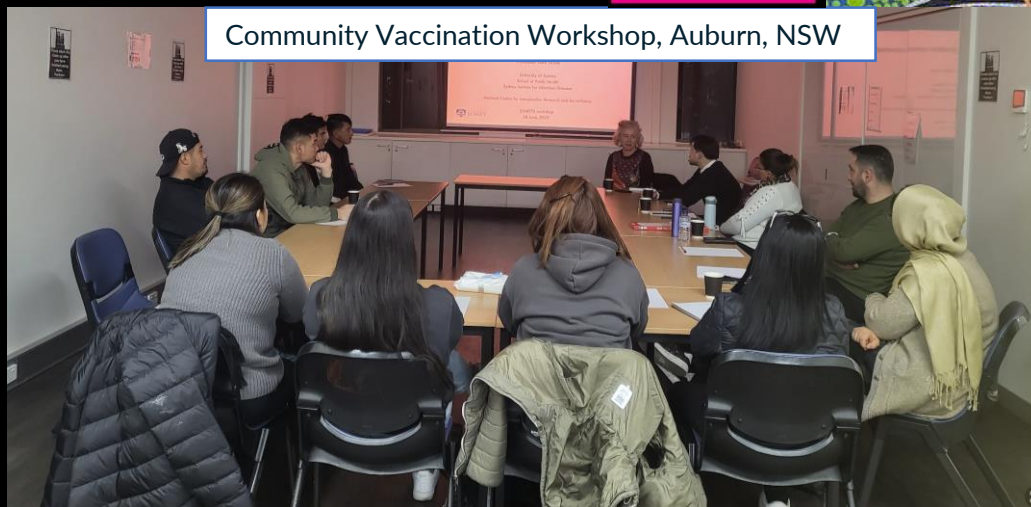


## Responding to misinformation

- Be discerning
  - Is it being shared a lot?
  - Is it affecting behaviour?
- Don't feed the trolls
- Prepare (inoculate) people
- Correct quickly in public arena
- Use trusted spokespeople



The Vaccine Champions Training Program, Fiji



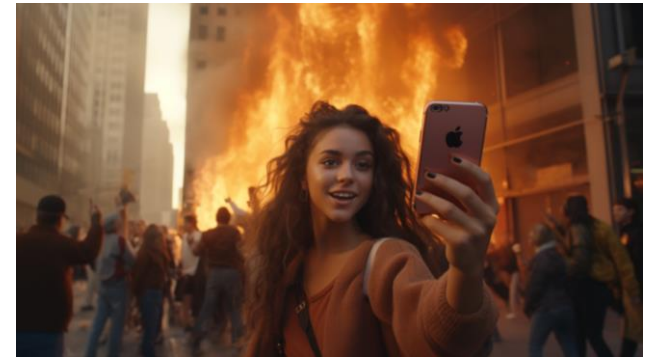
Community Vaccination Workshop, Auburn, NSW

- Lewandowsky, S., Cook, J., Schmid, P., et. al. The COVID-19 Vaccine Communication Handbook. A practical guide for improving vaccine communication and fighting misinformation. <https://sks.to/c19vax>
- Vaccine misinformation management field guide: Unicef, First Draft, Yale Institute for Global Health, and PGP (The Public Good Projects)
- Ecker, U.K.H., Lewandowsky, S., Cook, J. *et al.* The psychological drivers of misinformation belief and its resistance to correction. *Nat Rev Psychol* 1, 13–29 (2022). <https://doi.org/10.1038/s44159-021-00006-y>



## Challenges in social listening for vaccine confidence

- Most social media studies simply count up what is being *posted* on a topic without measuring salience, exposure, or associations or effects on outcomes related to attitudes or behaviours; they should never be used to guide actions
- Twitter, Reddit (and previously Facebook) have restricted access to useful *user* data, and platforms like Instagram, YouTube, WhatsApp, TikTok, etc. are not set up for bulk data access
- We don't yet know if *any* social media data can be a proxy for information exposure in the world





## Connecting surveys and social listening for actionable evidence

- Information diary platform that records *any* information exposure in seconds, connects to surveys to measure links to behaviours
- Pilot study in Malaysia shows people who *actively search* for cardiovascular-related information are less likely to continue/use statins regardless of digital health literacy
- We work with the WHO to make it easy for researchers in regional networks to do studies on vaccination attitudes and behaviours that can be synthesised at the individual participant data level to understand global patterns and differences





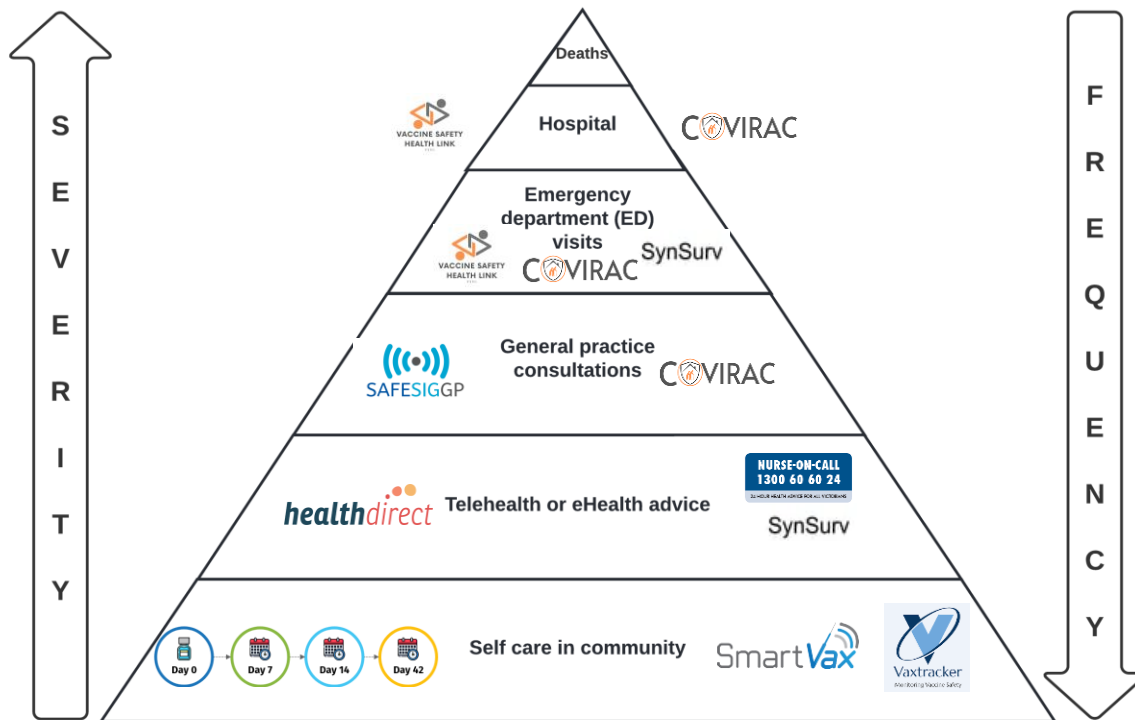
## Vaccine efficacy and effectiveness

- Protective efficacy of COVID vaccines demonstrated in clinical trials
  - Populations not previously vaccinated, mostly un-infected
  - Pre-Omicron
  - Questions now relate to timing of post-primary doses and effectiveness against new variants
- Observational data required, as clinical trials not feasible
  - Confounding by indication
  - Healthy user effect – avoiding infection, risk of severe disease
  - Time at risk
  - Health seeking behaviour difficult to control for
- Potential cohort effects – first group eligible were highest risk, but also most motivated to avoid infection



## Study designs for VE

- Large linked datasets
  - Population level datasets – high statistical power
  - Feasible since registration of COVID and flu vaccines now required in AIR
  - Potential differential ascertainment of some information eg previous hospitalisations
  - Some outcomes may not be coded accurately eg COVID hospitalisations
  - Difficulty in defining cohort; “inactive” patients, border issues
- Specific cohort or case control studies
  - Smaller/lower statistical power
  - More detailed clinical data eg smoking, weight
  - Confirmed (specific) outcome
  - Potential issues with control



## DATA SOURCES

Coronial records/ Deaths Records

Regional/National Admissions datasets  
Hospital Provider Network Datasets  
Insurer admission datasets  
Hospital based surveillance

Regional/National ED datasets  
Hospital Provider Network Datasets  
Insurer ED datasets  
Hospital based surveillance

Regional/National primary care datasets  
Insurer/Payer datasets

Telephone help line service datasets  
eHealth datasets

Solicited surveillance  
Social media e.g., Twitter, Reddit  
News media  
Internet search records



Known unknown (Questions)

Known known (Facts)

Unknown unknown (Exploration)

Unknown known ?

Question type	Target AEFI	Systems	Methods	Comments
Known known (Facts)		CEM/Solicited Spontaneous	Bayesian, PRR MaxSPRT	Specific Population/special group profiling
Known unknown (Questions)		LLD Active Spontaneous	RCA International O/E	O/E, SCCS/SCRI, concurrent CC, UMC, VAC4EU, GVDN
Unknown unknown (Exploration)		Spontaneous Syndromic	Visualisation O/E, media	Triangulation.. Bayesian network?

## Signal detection - Horses for courses