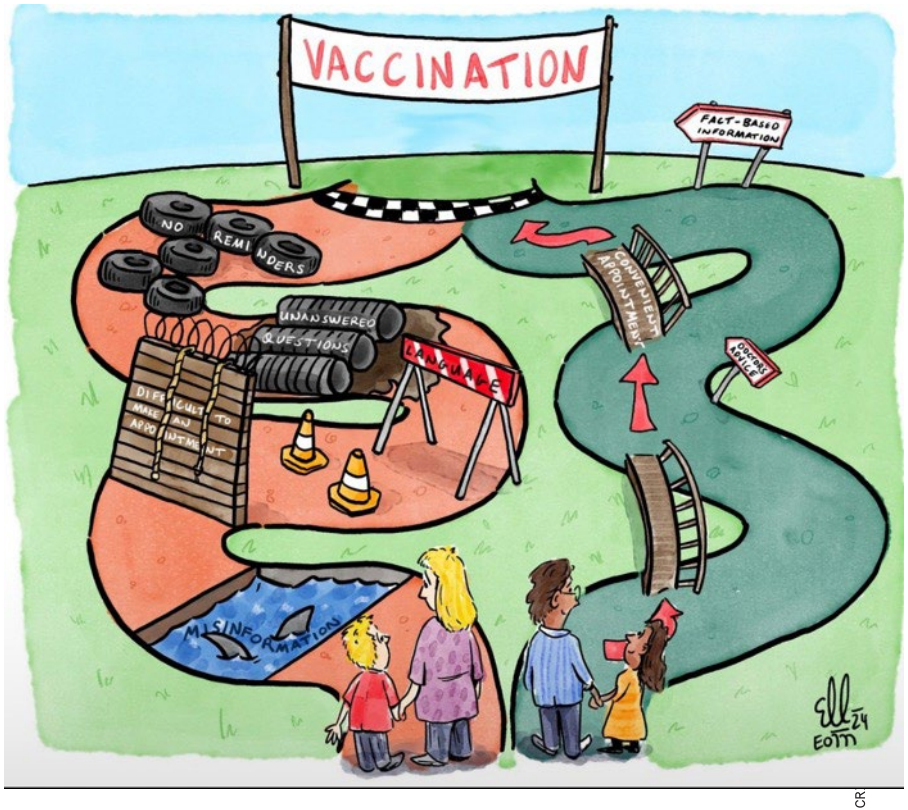
Increasing vaccination uptake

Julie Leask

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University of Sydney Infectious Diseases Institute
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SABII. Social and Behavioural Insights in Immunisation

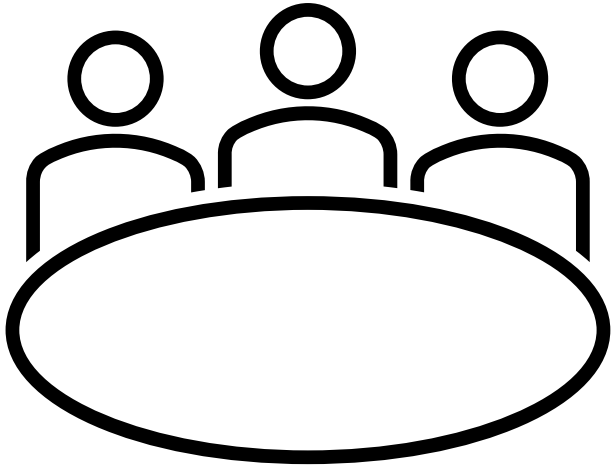
Learning objectives

- Critique the main explanatory models and frameworks used to explain low vaccination coverage
- Apply evidence on the strategies that increase uptake to a real-world scenario

Exercise

- Why don’t people vaccinate?
- Discuss with person next to you
- Write each reason on a sticky note

Take 5 minutes



What influences uptake?
Theories, models and frameworks

Theory: a principle or body of interrelated principles that purports to explain or predict a number of interrelated phenomena.

APA Dictoriary

A way of explaining or predicting why something happens.

Plain language version

Why are theories and frameworks useful?

- Make complexity managable
- Tell you what is most predictive of uptake
- Indicate what should be measured and monitored
- Guide your survey questions or interview guides
- Guide what should be acted upon to increase coverage

Today we will cover…

- Journey to Vaccination
- COM-B and Behaviour Change Wheel
- Five C’s
- Vaccine Barriers Assessment Tool - VBAT
- Behavioural and Social Drivers Framework - BeSD
- Social Ecological Model

Journey to Immunization Model, UNICEF

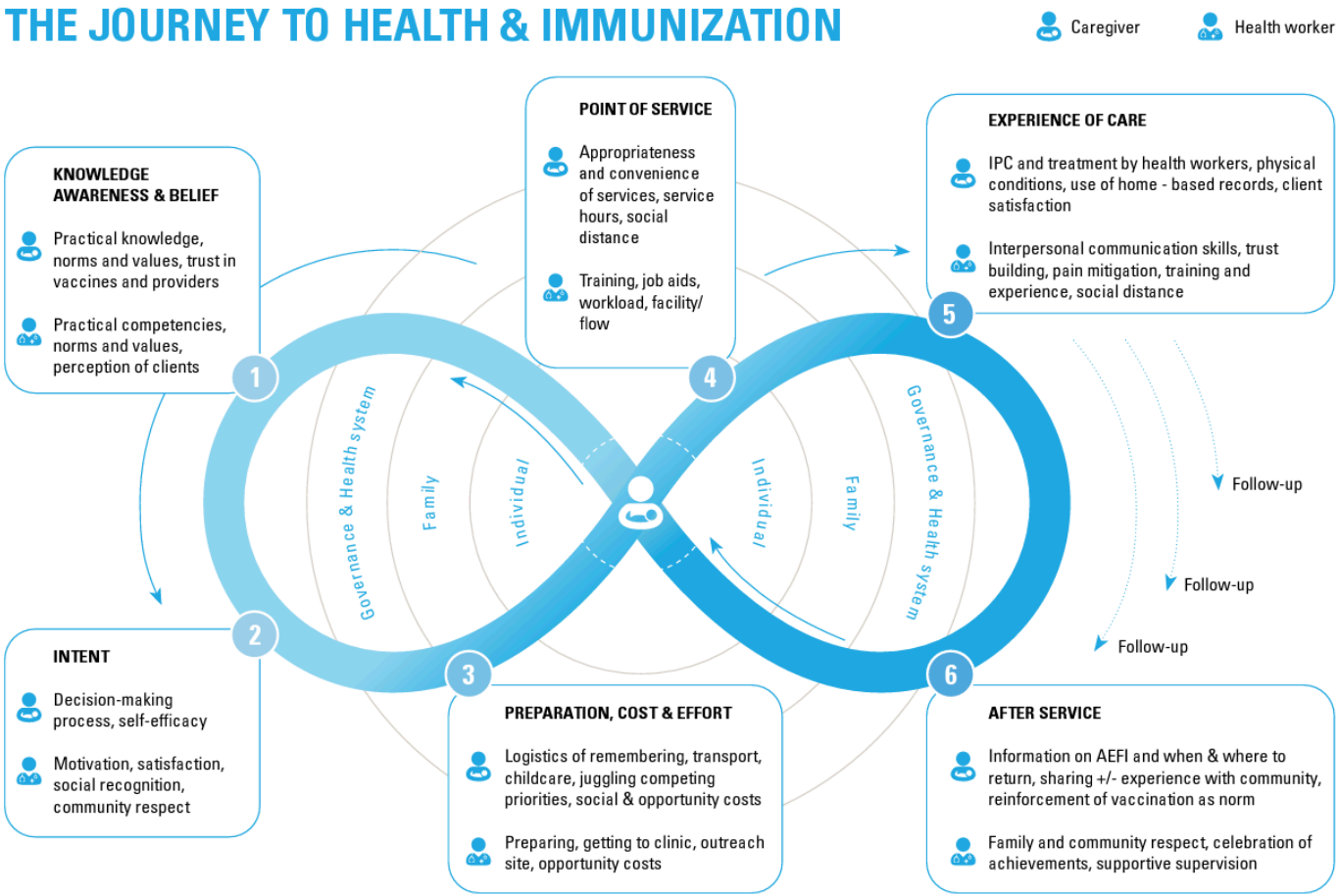
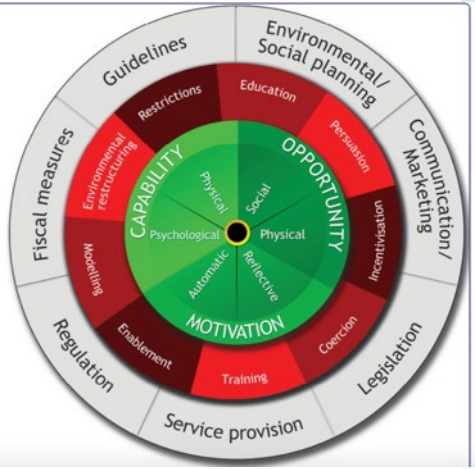
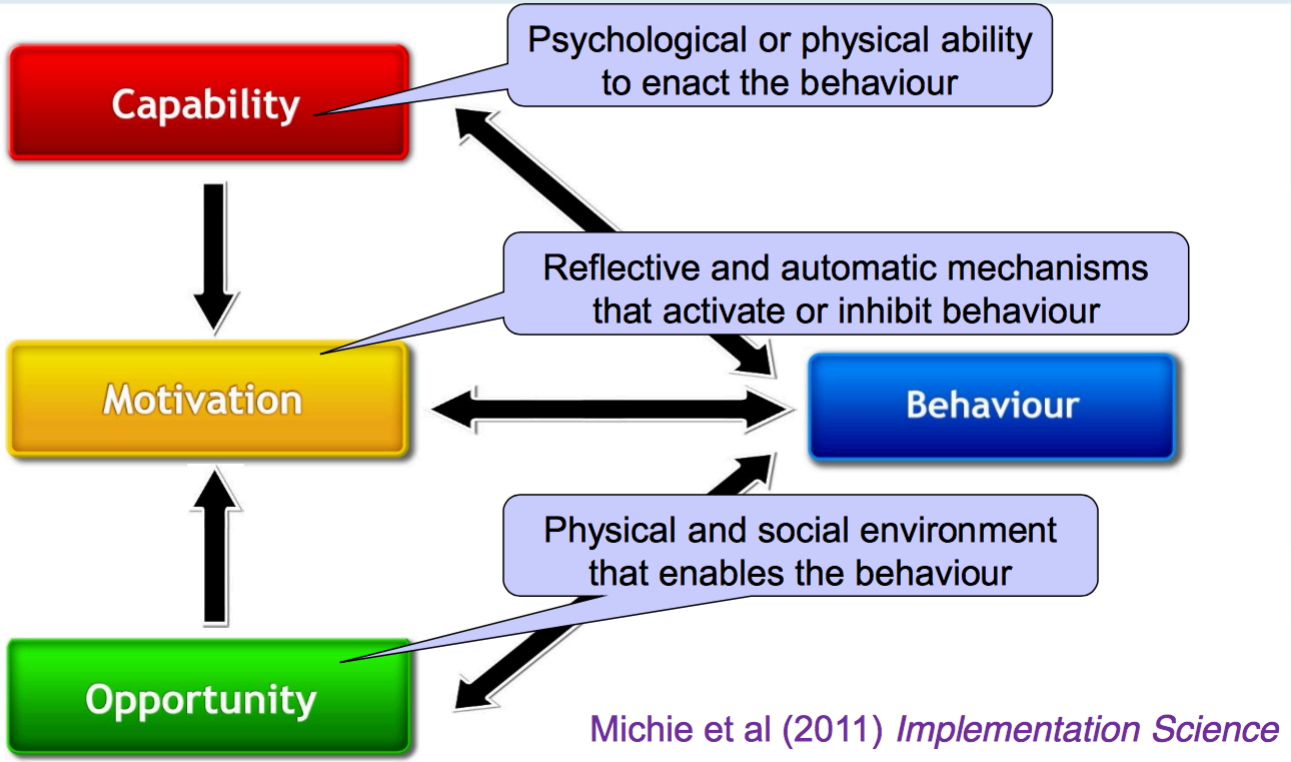


Image: https://www.unicef.org/eca/reports/strengthening-confidence-vaccines-demand-immunization-and-addressing-vaccine-hesitancy

The COM-B system: Behaviour occurs as an interaction between three necessary conditions





Michie et al (2011) *Implementation Science*

Figure: Susan Michie
https://medicine.dundee.ac.uk/sites/medicine.dundee.ac.uk/files/Professor%20Susan%20Michie.pdf

Michie S, van Stralen MM, West R. Implement Sci. 2011;6:42.

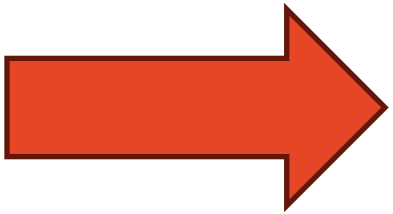
Behaviour Change Wheel – moving from drivers to action

COM component:	Physical capability	Psychological capability	Physical opportunity	Social opportunity	Automatic motivation	Reflective motivation
Information/ Education		✔				✔
Persuasion					✔	✔
Incentivization					✔	✔
Coercion					✔	✔
Training	✔	✔	✔		✔	
Restriction			✔	✔		
Environmental restructuring			✔	✔	✔	
Modelling				✔	✔	



The 3C's, 4C's and 5C's of vaccine hesitancy

1. Confidence – trust in vaccines and system that delivers them
2. Complacency – lack of risk perception
3. Convenience – structural barriers



1. Confidence – trust in vaccines and system that delivers them
2. Complacency – lack of risk perception
3. Constraints – structural barriers
4. Calculation – engagement in extensive information search
5. Collective responsibility – willingness to protect others

Betsch C, Schmid P, Heinemeier D, Korn L, Holtmann C, Böhm R. Beyond confidence: Development of a measure assessing the 5C psychological antecedents of vaccination. PLoS One. 2018;13(12):e0208601.

Vaccine Barriers Assessment Tool – Australia's own

- Access
- Communal benefit
- Equity
- Commitment
- Social norms
- Trust in healthcare workers

National Vaccination Insights Project

Kaufman J, Tuckerman J, Bonner C, Durrheim DN, Costa DSJ, Trevena L, Henseler J, Danchin M. Development and validation of the Vaccine Barriers Assessment Tool for identifying drivers of under-vaccination in children under five years in Australia. *Human Vaccines and Immunotherapeutics*. 2024 Dec 31;20(1):2359623.

A collaboration between

murdoch children's research institute

NCIRS National Centre for Immunisation Research and Surveillance Australia

THE UNIVERSITY OF SYDNEY

BeSD framework for measuring drivers of vaccine uptake - WHO/UNICEF



Thinking and Feeling

Perceived disease risk

Vaccine confidence (includes perceived benefits, safety and trust)

Social Processes

Social norms (includes support of family and religious leaders)

Provider recommendation

Gender equity

Motivation

Intention to get recommended vaccines

Practical Issues

Availability
Affordability
Ease of access
Service quality
Respect from provider

Vaccination

Uptake of recommended vaccines

Behavioural and social drivers of vaccination: tools and practical guidance for achieving high uptake. 2022 World Health Organization. https://apps.who.int/iris/handle/10665/354459. License: CC BY-NC-SA 3.0 IGO

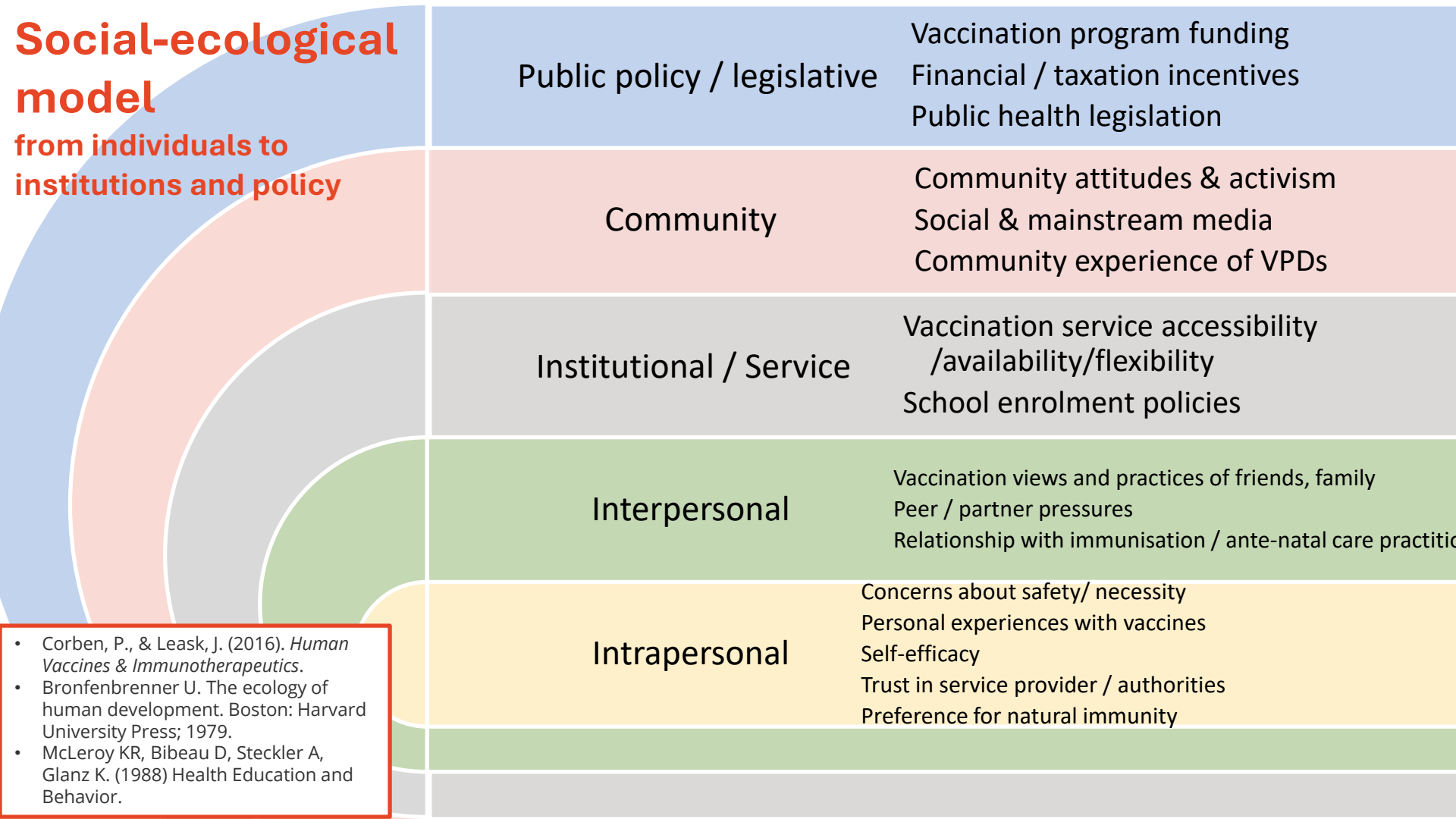
BeSD: Priority indicators - childhood vaccination tools

DOMAIN/ construct	**Childhood vaccination survey**	
	Priority question	***Indicator***
THINKING AND FEELING Confidence in vaccine benefits	How important do you think vaccines are for your child's health? Would you say… ☐ Not at all important ☐ A little important ☐ Moderately important, *or* ☐ Very important?	*% of parents/caregivers who say that vaccines are "moderately" or "very" important for their child's health*
SOCIAL PROCESSES Family norms	Do you think most of your close family and friends want you to get your child vaccinated? ☐ NO ☐ YES	*% of parents/caregivers who say most of their close family and friends want their child to be vaccinated*
MOTIVATION Intention to get vaccine	[COUNTRY NAME] has a schedule of recommended vaccines for children. Do you want your child to get none of these vaccines, some of these vaccines or all of these vaccines? ☐ NONE ☐ SOME ☐ ALL	*% of parents/caregivers who want their child to get "all" of the recommended vaccines*
PRACTICAL ISSUES Know where to get vaccination	Do you know where to go to get your child vaccinated? ☐ NO ☐ YES	*% of parents/caregivers who know where to get their child vaccinated*
PRACTICAL ISSUES Affordability	How easy is it to pay for vaccination? When you think about the cost, please consider any payments to the clinic, the cost of getting there, plus the cost of taking time away from work. Would you say… ☐ Not at all easy ☐ A little easy ☐ Moderately easy, or ☐ Very easy?	*% of parents/caregivers who say vaccination is "moderately" or "very" easy to pay for*

Access all tools and guidance here:
https://apps.who.int/iris/handle/10665/354459

Social-ecological model

from individuals to institutions and policy



- Corben, P., & Leask, J. (2016). *Human Vaccines & Immunotherapeutics*.
- Bronfenbrenner U. The ecology of human development. Boston: Harvard University Press; 1979.
- McLeroy KR, Bibeau D, Steckler A, Glanz K. (1988) Health Education and Behavior.

What increases uptake?



Interventions that work

Domain where problem is identified	Interventions shown to increase vaccination
Thinking and Feeling	Campaigns to inform or educate about vaccination (pic) Dialogue-based interventions
Social Processes	Community engagement Positive social norm messages (pic) Vaccine champions and advocates Recommendations from health workers
Practical Issues	Reduced out-of-pocket costs Service quality improvements (pic) Reminders (pic) Onsite vaccination (pic) Default appointments Incentives School and work requirements







Text 1 (sent on 9/25/2020)

WalmartRx - Hi John! It's flu season & you can get a flu shot at Walmart. To help you remember, you'll receive another text in a few days. Flu vaccines prevent getting or spreading the flu. INFO = info, STOP = opt out.

Text 2 (sent on 9/28/2020)

WalmartRx - Remember a flu shot is waiting for you at Walmart.

Milkman et al. *PNAS* 119 (6) e2115126119



Behavioural and social drivers of vaccination: tools and practical guidance for achieving high uptake. 2022 *World Health Organization.* https://apps.who.int/iris/handle/10665/354459. License: CC BY-NC-SA 3.0 IGO

Strategies that can increase vaccination coverage - from systematic reviews

Reducing out-of-pocket expenses
Vaccination requirements

Community engagement
Multiple combined interventions



On-site vaccination (work, school, childcare)
Home visiting
Standing orders
Provider recommendation
Provider support, assessment, feedback & reminders

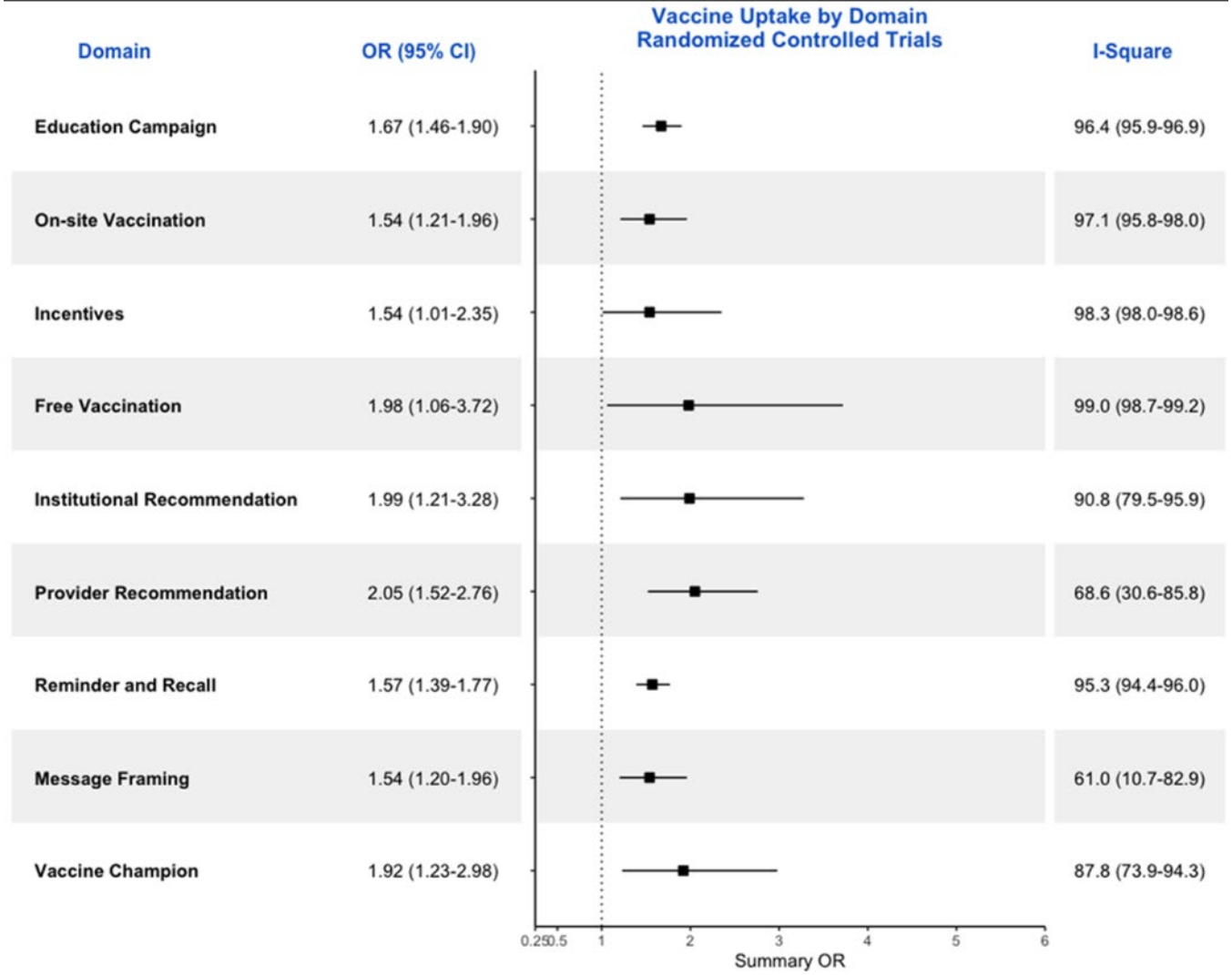
Positive social norm messages
Behaviour change counselling

Reminder/recall systems
Default appointments
Incentives
Planning prompts
Education when used in combination

Sources
Universally recommended vaccinations: community-based interventions implemented in combination www.thecommunityguide.org/vaccines/universally/communityinterventions.html
Ward K et al. Strategies to improve vaccination uptake in Australia, a systematic review of types and effectiveness. *Aust NZ J Public Health* 2012; 36(4):369–77.
Brewer NT, Chapman GB, Rothman AJ, Leask J, and Kempe A (2017). Increasing vaccination: Putting psychological science into action. *Psychological Science for the Public Interest.* 18(3): 149-207

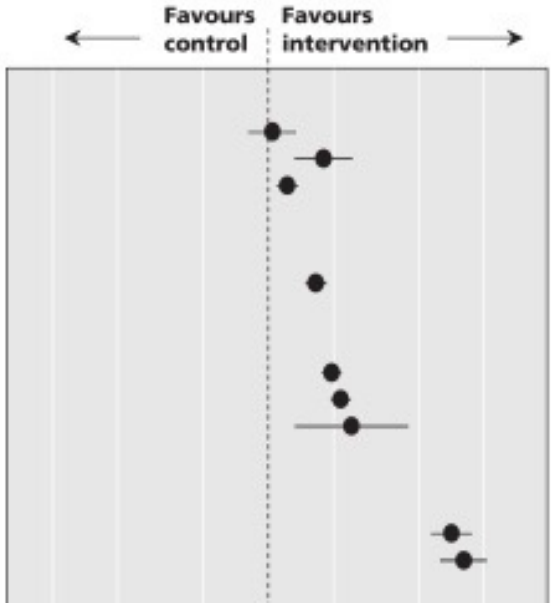
Increasing vaccination uptake – recent evidence review

Malik AA, Ahmed N, Shafiq M, Elharake JA, James E, Nyhan K, Paintsil E, Melchinger HC, Team YBI, Malik FA, Omer SB. Behavioral interventions for vaccination uptake: A systematic review and meta-analysis. Health Policy. 2023 Nov;137:104894.



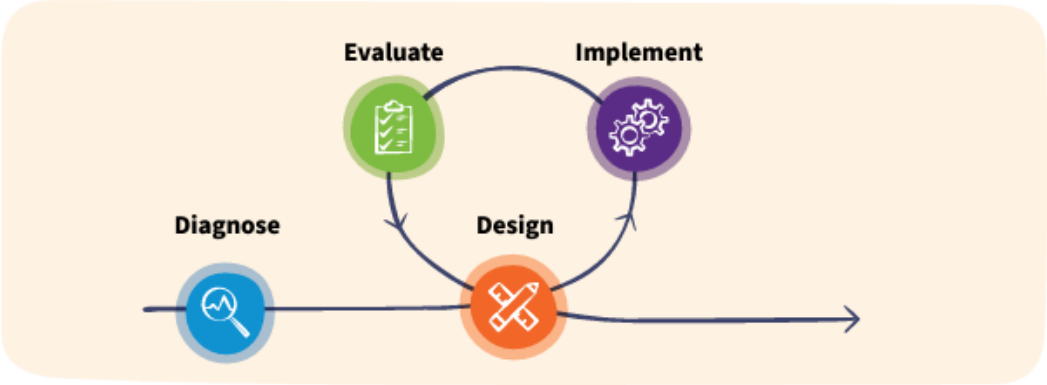
Combined strategies work best - example from increasing HCW vaccination

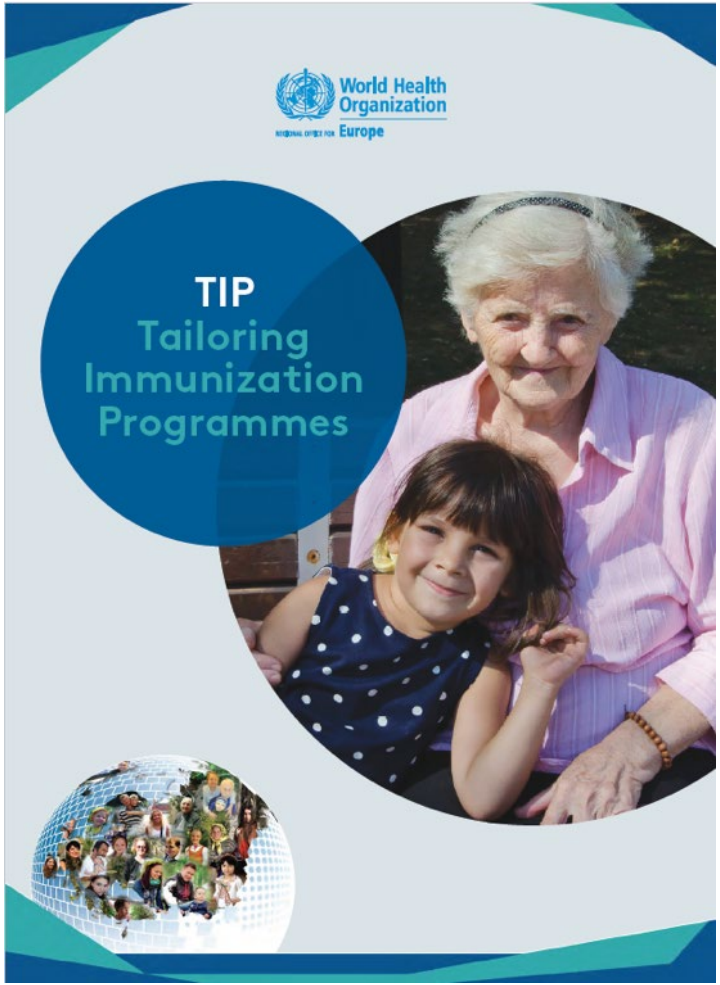
Study	RR (95% CI)	Intervention (*n*/*N*)	Control (*n*/*N*)
Nonhospital setting			
Education or promotion			
Dey et al.[14] — primary care, cluster RCT	1.04 (0.81–1.35)	100/457	83/395
Dey et al.[14] — nursing home, cluster RCT	1.80 (1.33–2.43)	78/768	77/1364
Kimura et al.[16] — cluster RCT	1.22 (1.09–1.38)	298/821	450/1517
Improved access to vaccine			
Kimura et al.[16] — cluster RCT	1.66 (1.50–1.84)	410/832	450/1517
Education + improved access			
Kimura et al.[16] — cluster RCT	1.96 (1.78–2.17)	439/754	450/1517
Lemaitre et al.[17] — cluster RCT	2.16 (1.96–2.39)	678/989	322/1015
Tapp[illegible]baum et al.[18] — before–after	2.43 (1.33–4.41)	32/135	13/133
Education + access + legislation + role models			
Hayward et al.[15] — cluster RCT, year 1	7.06 (5.67–8.78)	570/1610	84/1674
Hayward et al.[15] — cluster RCT, year 2	8.05 (6.30–10.30)	527/1726	67/1766



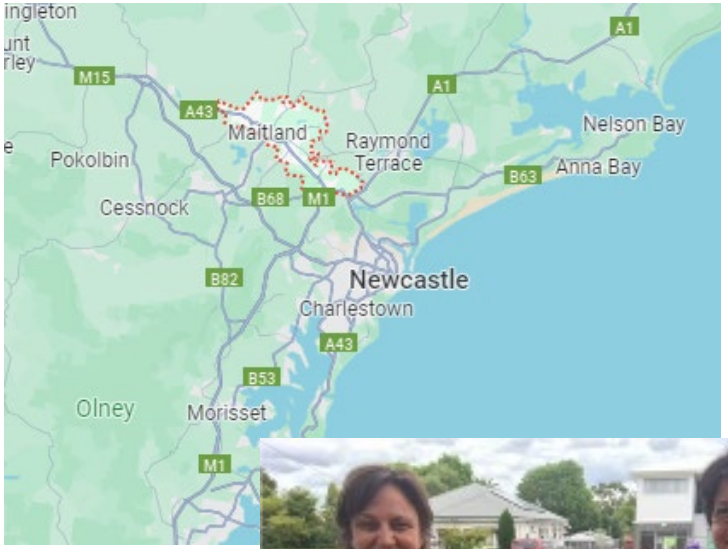
Po-Po Lam, Larry W. Chambers, Donna M. Pierrynowski MacDougall and Anne E. McCarthy
CMAJ September 07, 2010 182 (12) E542-E548; DOI: https://doi.org/10.1503/cmaj.091304

Bringing it all together: Tailoring Immunization Programmes



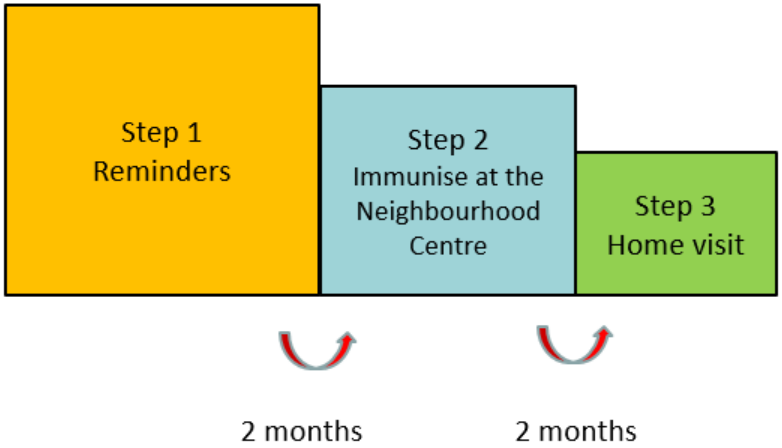


Maitland: Tailoring Immunisation Programmes





- 2013 - coverage was 57.7% for 12 month olds
- Sought to find out why, through an advisory group and qualitative interviews
- Co-developed at three-step process

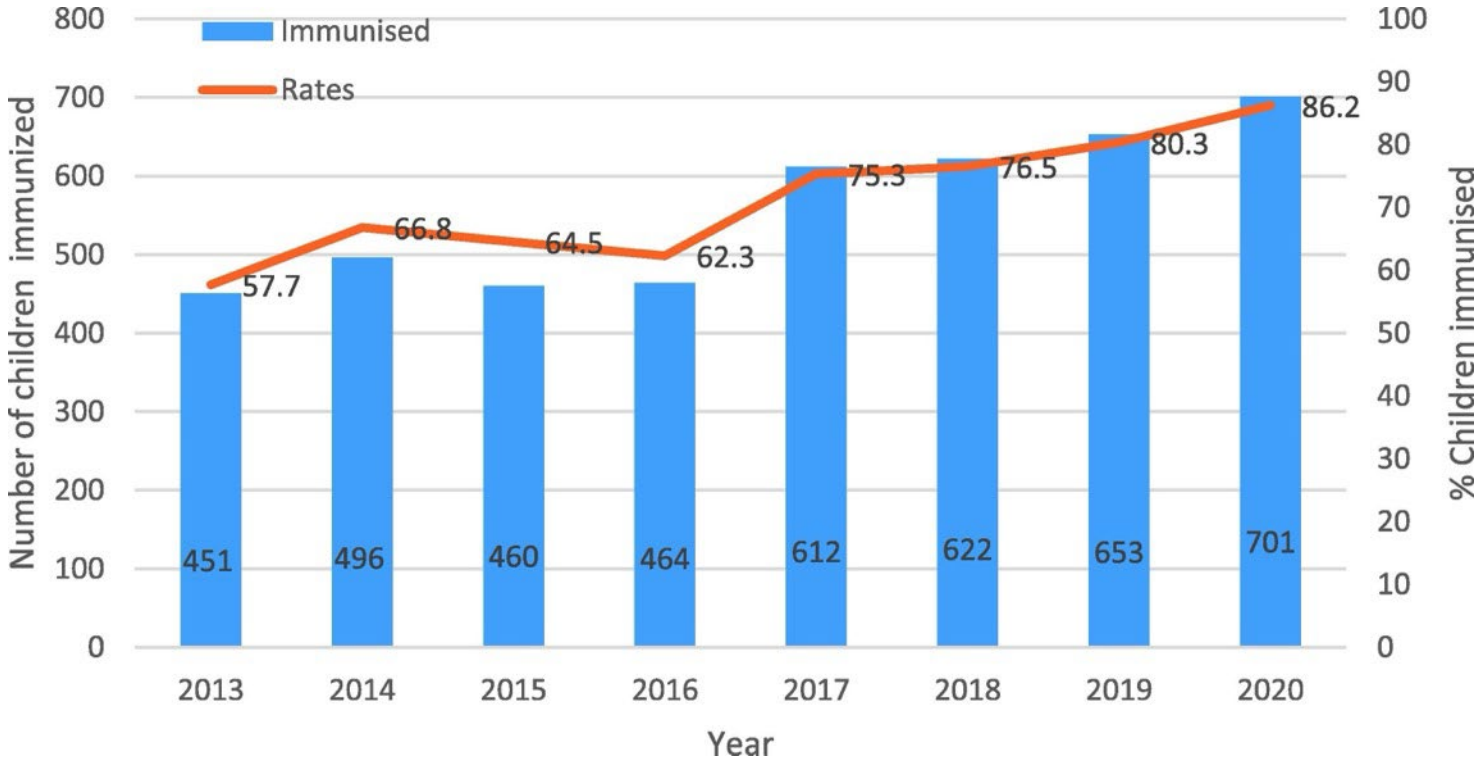


Plus:

- key partners continue to monitor changes using AIR data
- Aboriginal Immunisation Healthcare Worker and Multicultural Project Officer assist in contacting families and arranging services
- Nurses collaborating with the neighbourhood centre and a community representative

Thomas S, Higgins H, Leask J, Menning L, Habersaat K, Massey P, et al. Australian Journal of Primary Health. 2019;25(4):310-6.

Maitland – benefits of a tailored approach



S. Thomas, D. Durrheim, F. Islam et al., Improved childhood immunization coverage using the World Health Organization's Tailoring Immunization Programmes guide (TIP) in a regional centre in Australia, Vaccine, https://doi.org/10.1016/j.vaccine.2021.11.067

Main messages



- Uptake supported by
  - vaccine availability
  - recommendation awareness
  - service affordability
  - service access
  - vaccine acceptance
- Several different interventions together make the biggest difference
- Upstream system, resourcing and service level changes can have the largest impacts
- Provider vaccine recommendations have a high impact due to influence and vaccine availability
- Community ownership and engagement is vital
- Education works well in combination with other interventions
- Good communication is essential
- Understand why people don’t vaccinate and tailor solutions

Thank you



Pictured: Nurse Kai with community mobiliser Jeremiah in a small canoe delivering COVID-19 vaccines to remote parts of Northern Sierra Leone

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