

# Vaccine Acceptance Science, Policy, and Practice in a “Post-Fact” World”: *Les Pensières Annecy September 2017*

Aligning research goals with public health needs:

Improving uptake and acceptance of maternal and childhood vaccines in pregnancy in Australia - a novel and sustainable approach

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# Outline

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**Aim:** to discuss successes and challenges in translating research evidence into policies and programs

**Focus:** new program of work in Australia to improve vaccine acceptance and uptake of maternal and childhood vaccines

- Underline **challenges** not successes yet
- Importance of local and **international collaboration**
- Understanding needs of **public health officials**
- **Engage the end user from the start**
- **Consider vaccine policy**
- Focus on **translation** when planning interventions

# Background

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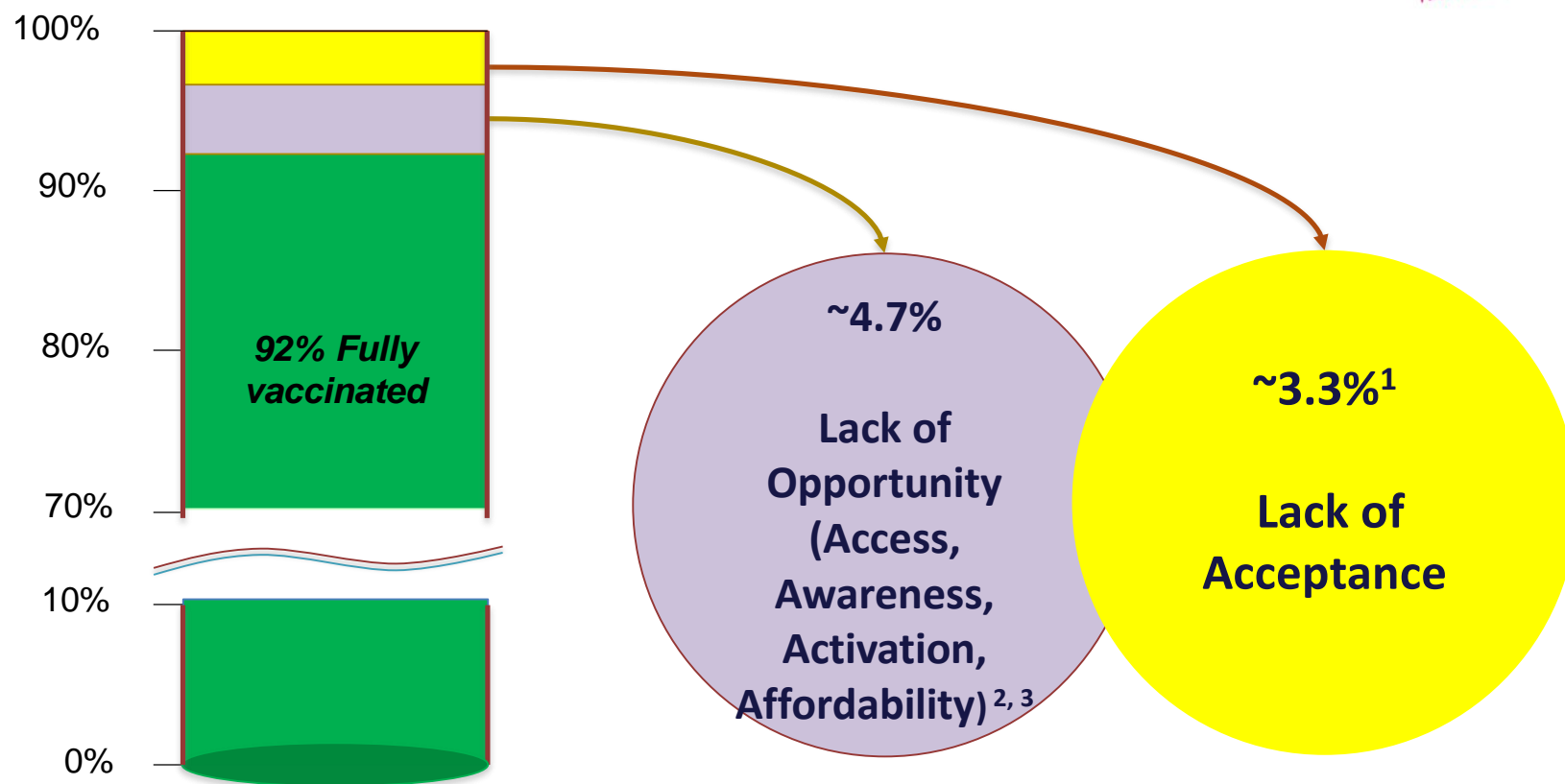
## **Substantial investment re safety and efficacy of vaccines**

- Australia spends \$600 million/year on vaccines
  - need to make the same investment to ensure that pregnant women and children are actually getting them
- need to ensure that immunisation policies introduced to support vaccine uptake are fair, equitable and effective

Recent announcement **\$5.5 million** federal funding to develop new resources: **“Get the facts” Immunisation campaign**

- welcome but alone will have limited impact on vaccine confidence and uptake
  - **need to interventions to inform vaccine policy**
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# Coverage is stable with persistent gap

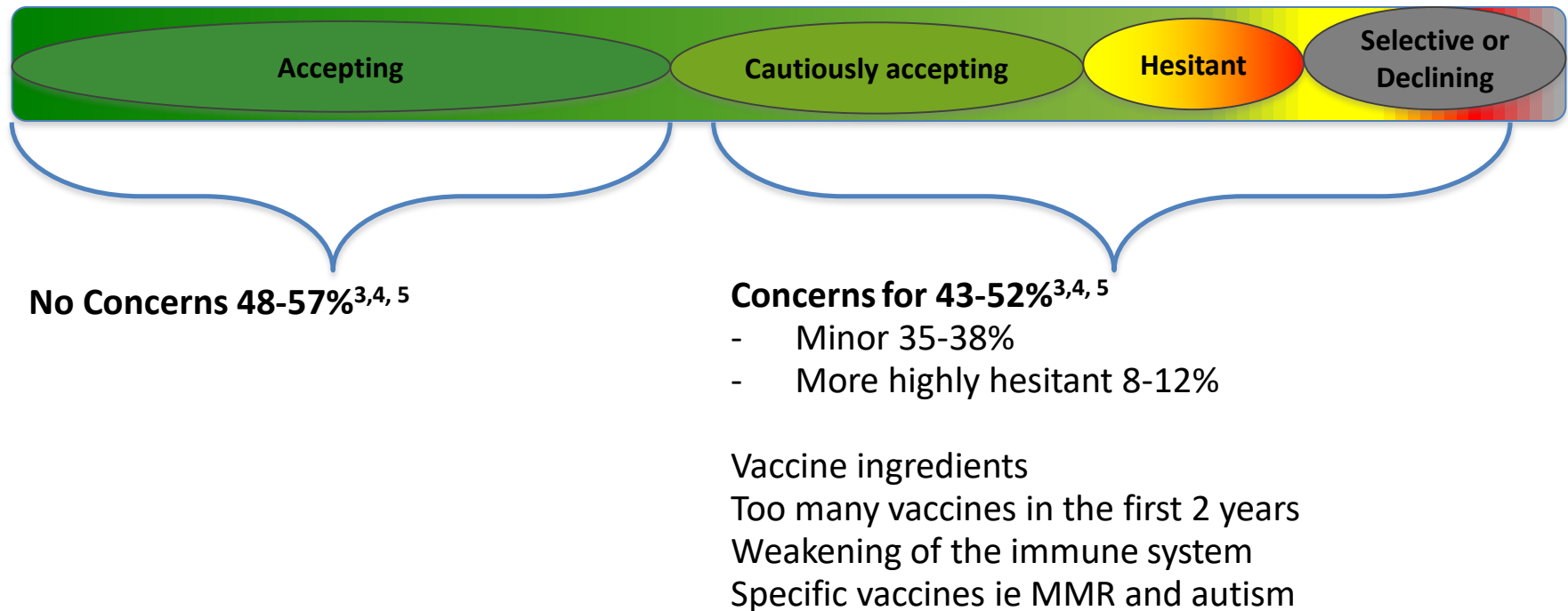


<sup>1</sup> Beard FH et al. Trends and patterns in vaccination objection, Australia, 2002–2013 *Medical Journal of Australia* 2016; 204 (7):275

<sup>2</sup> Thomson A et al. (2016) *Vaccine*. 34;1018-1024.

<sup>3</sup> Senn A. Human rights and capabilities. *Journal of Human Development*. 2005;6:151-66.

## Vaccine acceptance is on a spectrum<sup>1,2</sup>



1. Benin AL. et al *Pediatrics* 2006
2. Leask et al *BMC Pediatrics* 2012
3. Chow et al *Aust Fam Physician* 2017
4. Costa-Pinto et al *JPCH* 2017
5. Danchin et al *Vaccine* 2017

# New immunisation policies

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Australia - implemented policies to ramp-up penalties for vaccine rejection

**From January 1 2016** federal government passed **The Social Services Legislation Amendment (No Jab, No Pay) Bill 2015:**

- linked to Family Assistance Payments since 1999
- removal of “conscientious objection” exemption to immunisation requirements: no philosophical or religious exemptions
- includes

Family Tax Benefit (FTB) part A (supplement); Child Care Rebate and Child Care Benefit:  
*approx \$15,000/year for low SES families*

## No Jab No Play (Victoria)

- fully immunised on NIP to allow enrolment into childcare or kindergarten OR need medical exemption or be on a catch up schedule
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## VIEWPOINT

# Imposing penalties for vaccine rejection requires strong scrutiny

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## Background

At a time when vaccine-preventable diseases (VPDs) are better controlled than ever, vaccine rejection presents a persistent challenge

exemptions to the requirements include: a medical contraindication, natural immunity to a disease, being in a vaccine study, temporary unavailability of vaccine, child vaccinated overseas or a decision at the discretion of the Secretary.

# Our pilot work – key findings

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## Our published pilot work identified

- (i) pregnancy as a key vaccine decision-making time point
  - (ii) first time mothers are more undecided and vaccine hesitant than mothers with children
  - (iii) confirmed flu and pertussis vaccine uptake in pregnancy in Australia remains low
  - (iv) that there is a strong correlation between clinician recommendation and receipt of maternal vaccines
  - (v) that concerns regarding childhood vaccines in pregnancy correlated with childhood vaccine uptake post-delivery
  - (vi) that midwives are the most frequently accessed and trusted source of vaccine information in public antenatal clinics and that
  - (vii) lack of availability of maternal vaccines is key barrier to receipt
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## Plans to vaccinate unborn child according to the Vaccine Communication Framework (VCF), by parity

First child	Unquestioning acceptor n (%)	Questioning acceptor n (%)	Hesitant n (%)	Delayed selective n (%)	Refuser n (%)	Total
No	271 (67.4)	111 (27.6)	7 (1.7)	7 (1.7)	6 (1.5)	402
Yes	<b>194 (60.2)</b>	<b>100 (31.1)</b>	<b>17 (5.3)</b>	<b>7 (2.2)</b>	<b>4 (1.2)</b>	<b>322</b>
Total	456 (64.2)	211 (29.1)	24 (3.3)	14 (1.9)	10 (1.4)	704

### First time mothers vs mothers with children:

**73%** made a decision regarding vaccination compared with 89% of mothers with children (difference in proportion 15%; 95% CI 10-21%; p-value <0.001)

**Any concerns: 39.8% vs 32.6%**

**Hesitant: 5.3 vs 1.7%**

**Highly Hesitant (top 3 VCF categories): 8.7 vs 4.9%**

## Reported vaccine uptake for Pertussis and flu vaccines in pregnancy post delivery

	Victoria		South Australia		Western Australia		Total		
	N	n(%)	N	n(%)	N	n(%)	N	n(%)	95% CI
<b>Pertussis</b>	175	145 (82)	64	47 (74)	51	44 (86)	290	<b>236 (82)</b>	78-86
<b>Flu</b>	175	82 (46)	64	30 (46)	51	20 (40)	290	<b>132 (46)</b>	40-52
<b>Partner received Pertussis vaccine</b>	173	115 (66)	63	31 (50)	51	25 (50)	287	<b>171 (60)</b>	54-66

## Vaccine uptake and correlation with concerns in pregnancy

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**Follow up 3-6 months post delivery:**

**Vaccine uptake: 11% (95% CI 7.4-15.9%) not up to date**

**Vaccine uptake correlated with concerns in pregnancy:**

**-Infants of mothers who reported “a lot of concern” in pregnancy were less likely to be up to date** compared to mothers who had no concerns (diff in proportions of vaccine uptake was 58%: 95% CI 1–41%,  $p = 0.035$ )

**-Belief that “vaccines are safe for my child”** (vaccine uptake 91% in those who agreed compared to 44% in mothers who did not agree; diff in proportion 47%: 95% CI 14–79%,  $p = 0.005$ )

## Correlation between uptake and maternal immunisation

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There was **no association** between childhood vaccine uptake and uptake of pertussis or flu vaccines in pregnancy.

Correlation between mothers who reported a **recommendation for vaccines in pregnancy** and receipt of the vaccine

- **86% who received a recommendation for pertussis** compared to **64% who didn't** received the vaccine (OR 3.5; 95% CI 1.6–7.8, p-value 0.002)

- **58% who received a flu recommendation** compared to **31% who didn't** (OR 3.1; 95% CI 1.9–5.0, p-value 0.000)

# Build interventions

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## **Our pilot work will enable us to:**

- Develop tailored approaches to improving vaccine uptake by targeting pregnancy as a key vaccine decision-making time point
- Provide training to providers to support vaccine recommendations to address specific concerns correlated with uptake
- Engagement with healthcare providers (HCPs) is the single most important factor in parent decision-making and that they are the most trusted and highly accessed resource.

# Planning interventions

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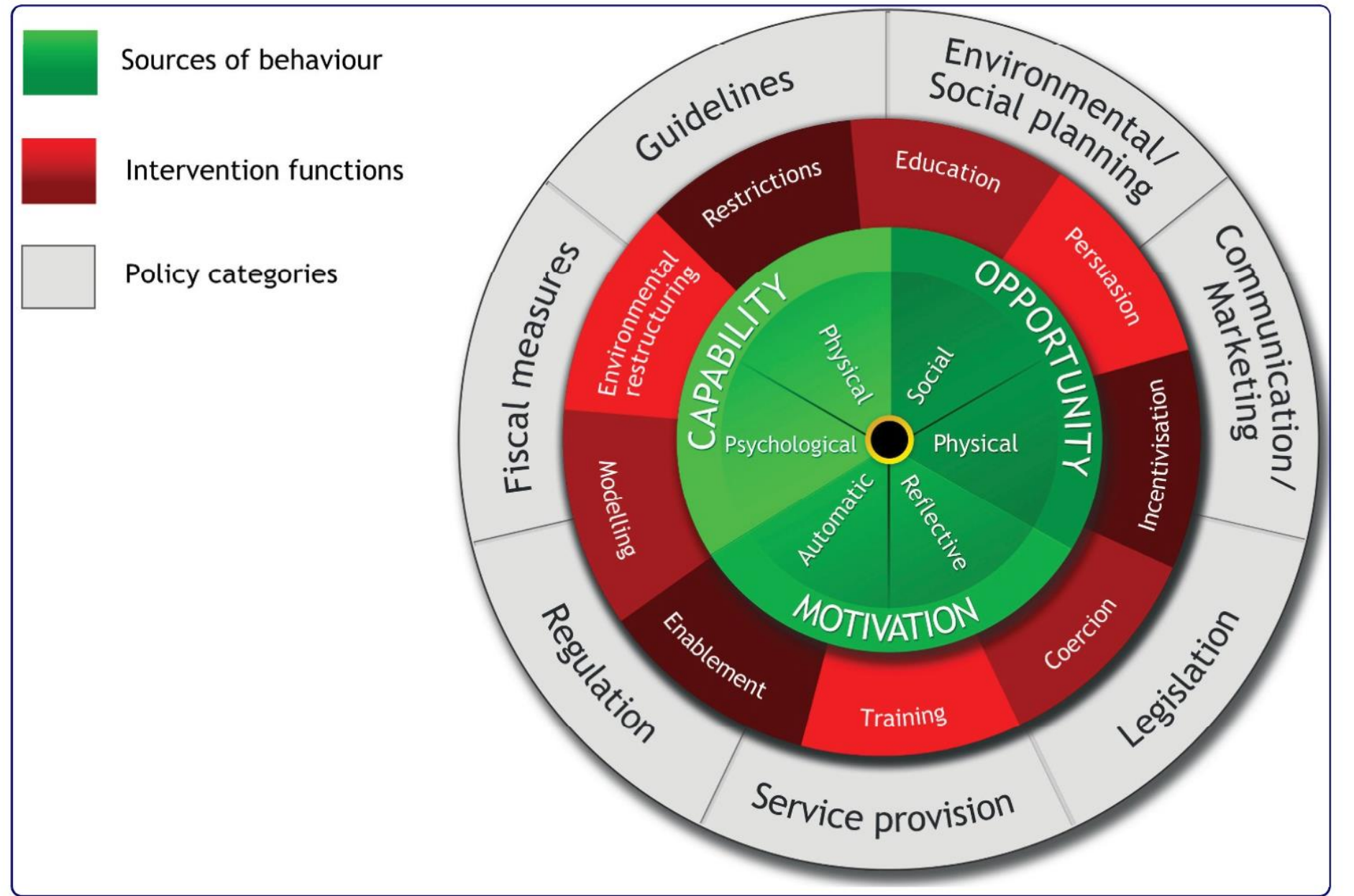
Framework:

## The behaviour change wheel

- drivers for under-vaccination are dependent on capacity, opportunity and motivation and that interventions need to be targeted at the specific barriers.
- using a **socio-ecological model**, new interventions can be tailored to the **individual, organisational and policy levels**, ensuring that both **structural levers** and **dialogue-based and educational strategies** are incorporated in **multi-component interventions**



The behaviour change wheel: Michie et al. Implementation Science 2011, 6:42



# MumBubVax

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Novel, multi-component vaccine promotion package, MumBubVax, to be delivered in pregnancy by obstetricians and midwives

- need to assess feasibility and acceptability by providers and mothers

## The **MumBubVax vaccine promotion package**

- targeted at three levels - the practice, provider and parent level - to improve uptake of both maternal and childhood vaccines
- intended to have a **sustained impact on vaccine acceptance**, not just uptake
- incorporates current evidenced-based thinking on the most effective strategies to improve vaccine decision-making
- **normalise vaccine discussions at mandated times** in Australian antenatal care for the first time.

# Planning interventions

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## Stakeholder meeting

Head of Obstetrics; Director of Maternity Services & Head of Midwifery at Royal Women's Hospital; Victorian Department of Health; vaccine policy experts; vaccinologists:

- Identify barriers and practical solutions to maternal vaccination in public setting

## Key informant interviews to build process map:

- Obstetricians, midwives

## MidVaxMI study: public-hospital midwives

Conducting **key informant interviews and focus groups** in 3 states (WA, SA and Vic) to understand the interest and feasibility of an MI based intervention for midwives, including understanding their attitudes and values, role in advocacy and vaccine delivery and the barriers and enablers

# MumBubVax

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## **Program enhanced by strong national and international collaboration**

- Prof Saad Omer and team, Emory University and P3+ trial: key advisors
  - National meeting maternal Immunisation: collaboration
  - Victorian Department of Health
  - Royal Womens Hospital – agreement to fund and provide vaccine
  - MCRI digital health team: parent app, webinars and MI video
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- Build on the federally funded **Sharing Knowledge on Immunisation (SKAI)** project
    - led by A/Prof Julie Leask, University of Sydney
    - inform immunisation education and communication skill training in the primary care setting by GPs
    - Resources tailored to most common vaccine concerns
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# The SKAI Resources

Five  
knowledge  
tools for the  
hesitant

## What about autism?

Many large studies have found  
vaccines do not cause autism

## What is in vaccines?

All ingredients in vaccines  
are tested for safety

## Why is the schedule the way it is?

Vaccines are timed to protect children

## How do vaccines affect immunity?

Vaccines Strengthen Natural Immunity

## How are vaccines shown to be safe?

Vaccines are carefully tested



# SKAI

Sharing Knowledge About Immunisation

Available at

<http://www.ncirs.edu.au/research/social-research/sarah-project/>

# Planned interventions - obstetricians

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## **Vaxchat online training webinar**

- Adapted from P3+ trial in Georgia and Denver, USA (Saad Omer and team)
- 20 minute webinar for obstetricians linked to CME points
- Provide evidenced based training on how to discuss maternal vaccination with hesitant mothers
- Positive recommendation to vaccinate
- 3 key points
- Pivot to the diseases



# Planned interventions - midwives

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## MI based intervention

- Online webinar: introduction to MI communication
- Two face to face training sessions
  - Role modeling
  - Observation
  - Feedback
- Linked maternal and childhood vaccination resources on parent app
  - SKAI facts sheets: common vaccine concerns
  - Decision aids

# MumBubVax

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## Structural levers

- provision of maternal vaccines on site: staff, vaccine fridges
- standing orders
- EMR reminders on practice software

## Veerasingam P et al. Pediatrics 2017 Vaccine Education During Pregnancy and Timeliness of Infant Immunization

- education even with good provider training is unlikely to be a powerful determinant on its own – need structural levers
- Need to reach mothers/parents before they receive negative messaging as mothers who received negative messaging less likely to have infants immunised on time; positive info same as no info

# MumBubVax

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## **If proven effective, MumBubVax could**

- be scaled up and translated into clinical practice in Australia
- be adapted and tested in other geographic and demographic populations, including low-income settings, in partnership with the World Health Organisation (WHO)

**Need strong partnerships with academics, both national and international, and government and effective evaluation to ensure knowledge translation**

# Acknowledgements

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A/Prof Michelle Giles, Monash University

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## **P3+ Trial team**

Allison Chamberlain, Emory University

Sean O'leary, University of Denver

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## SARAH Collaboration: Support And Resources to Assist Hesitant parents with vaccination



### SARAH/SKAI Team

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**Kristine Macartney** NCIRS

**Margie Danchin**, Murdoch Children's Research Institute

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