



RN Bernadette Heaphy

Regional Immunisation Advisor - Central
Immunisation Advisory Centre The University of
Auckland

Saturday, August 10, 2019

(Room 1)

11:00 - 11:40 Some Realities About Vaccination

Some realities of vaccination

Bernadette Heaphy
BN, RN, PG Dip Health Sci.
Regional Immunisation Advisor
Immunisation Advisory Centre

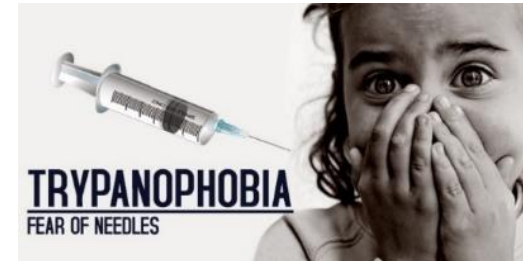


Tailoring conversations

- **Vaccine decisions are complex**
- No “one size fits all”
- Match your dialogue and time to the audience

- **Vulnerables** – refer to outreach
- **Nurturers** – emphasise disease protection
- **Unwell** – support not delaying unless contraindicated i.e. mildly unwell
- **Fearfuls** – mitigate pain of vaccination
- **Rejecters** – acknowledge, leave the door open

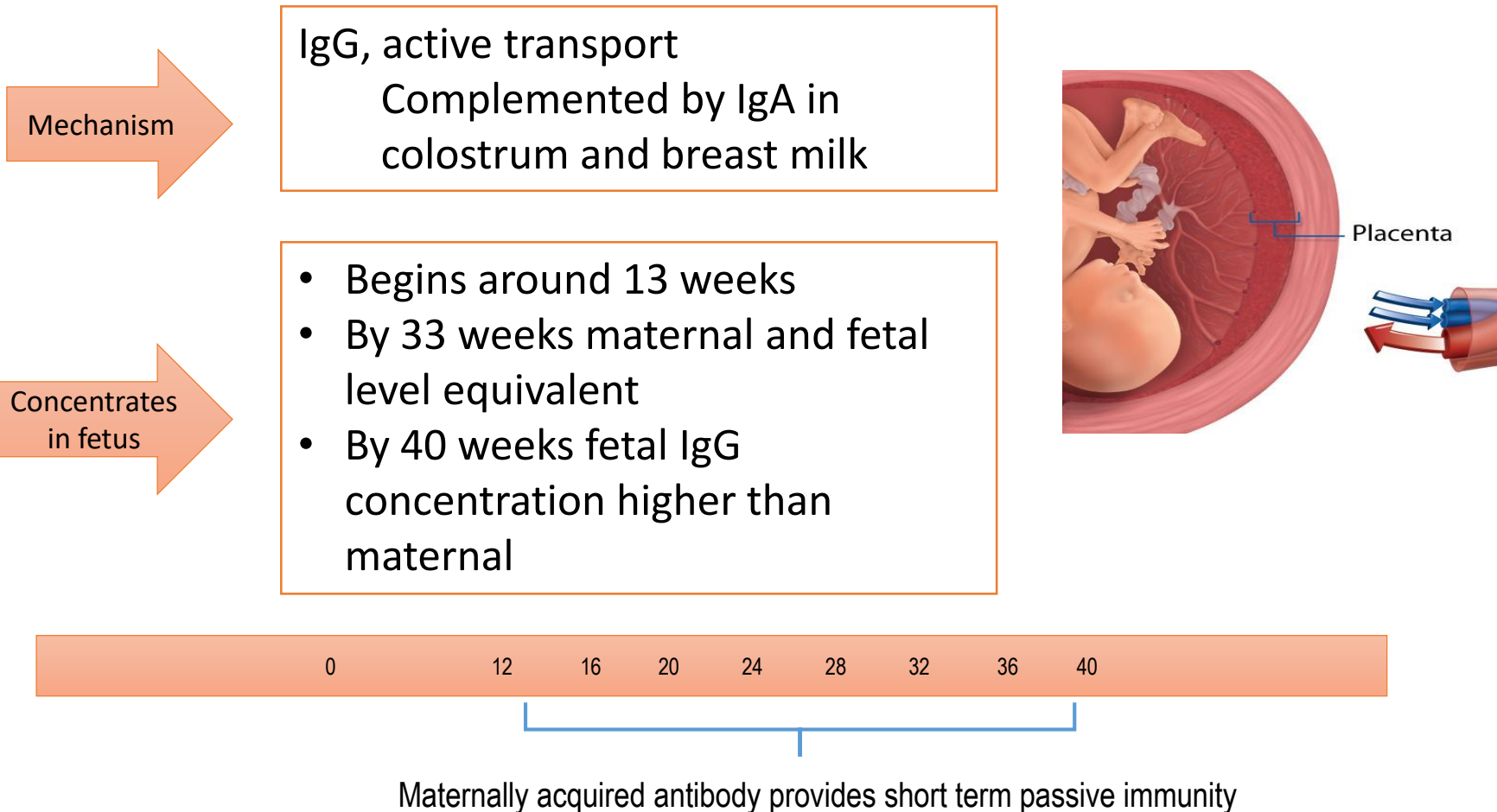
We all want to keep babies safe



Pregnancy vaccination

- I'm 20 weeks pregnant and you want me to have a flu vaccine and one with whooping cough in it.....
- Great you are aware of the national and international recommendations around protecting yourself and your baby
- I'm hearing that you don't sound that keen on having them
- Would you like to discuss this?

Primary mechanism for maternal immunisation



This is an awesome gift you can give your baby.

Influenza vaccination

- Reduces maternal morbidity/mortality
- Reduces fetal mortality
 - Reduces fever
- Reduces flu in newborn
 - 91% effective in reducing flu in infants**
 - Protective for around 8 weeks
- Funded any time in pregnancy

Pertussis-containing vaccination

- Reduces maternal morbidity
- Passive protection to newborn
- Reduces newborn morbidity
 - >90% effective in reducing pertussis for first 2 months of life**
- Funded from second trimester

FORMALDEHYDE?



THERE'S MORE IN A
PEAR THAN A VACCINE!

Vaccine ingredients? No worries - fb.me/RtAVM

What is in a vaccine?

1. The immunogen!
2. Sometimes an adjuvant (immune enhancer), usually aluminium salt
3. Sometimes a preservative (2-phenoxyethanol)
4. Buffer, stabiliser, tonicity. Usually table salt, gelatin, polysorbate
5. Residuals (measured in nanograms or ppb)

Quantities are very small and not harmful, very rare allergic reactions can occur

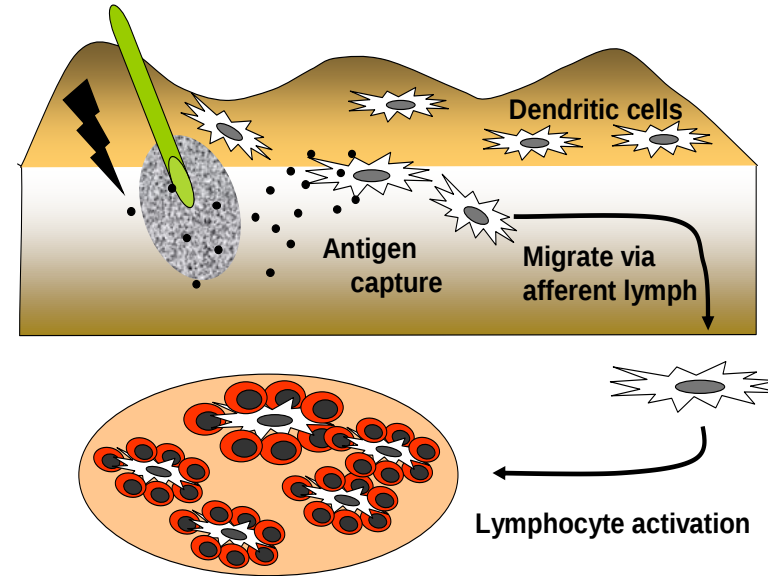
ALUMINIUM?



IT'S IN ALL THE FOOD WE
EAT - EVEN BREAST MILK!

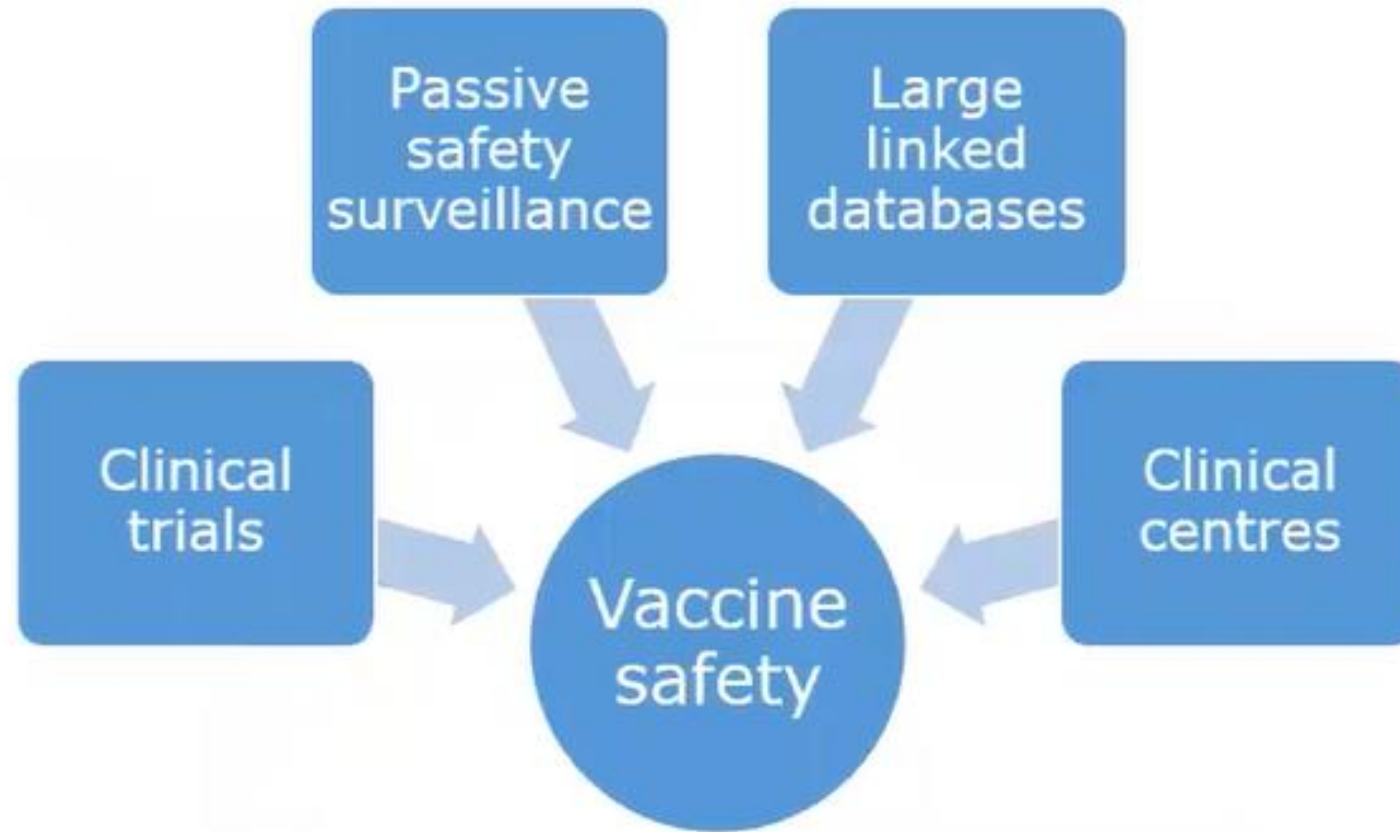
Vaccine ingredients? No worries - fb.me/RtAVM

What happens to the injected vaccine?



- Antigen carried to lymph node where specific response takes place
- Other ingredients excreted via blood, kidneys, urine

Monitoring throughout the life of the product.



Pregnancy vaccination webinar

Immunisation information for midwives

Date: 19 April 2018

Description: In this webinar we will focus on aspects of vaccines and vaccine preventable disease that are most relevant to midwives and their clients. **Presenters:** Lisbeth Alley: Regional Immunisation Advisor, the Immunisation Advisory Centre Helen Petousis-Harris: Academic Head, Immunisation Research and Vaccinology at the Immunisation Advisory Centre, Senior Lecturer in Vaccinology, University of Auckland Karen Upton: Community midwife, Newborn Enrolment Coordinator, Auckland DHB.

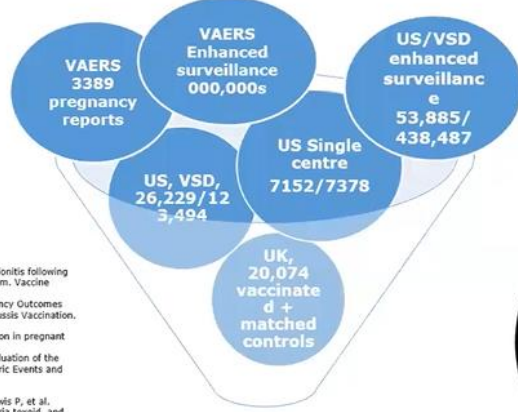
Presentation Slides:

[Protecting Mothers and Babies Lisbeth Alley.pdf](#)

[Talking with pregnant mums and whanau Karen Upton.pdf](#)



Maternal pertussis vaccination safety studies – no safety concerns



2017 Systematic review 21 studies

No safety concerns

 THE UNIVERSITY OF
AUCKLAND
NEW ZEALAND

 The Immunisation
Advisory Centre

Datwani H, Moro PL, Harrington T, Broder KR. Chorioamnionitis following vaccination in the Vaccine Adverse Event Reporting System. Vaccine 2015;33:3110-3.
Morgan JL, Bagari SR, McIntire DD, Sheffield JS. Pregnancy Outcomes After Antepartum Tetanus, Diphtheria, and Acellular Pertussis Vaccination. Obstetrics & Gynecology 2015;125:1433-8.
Donegan K, King B, Bryan P. Safety of pertussis vaccination in pregnant women in UK: observational study. BMJ 2014;349:g4219.
Kharbanda EO, Vazquez-Benitez G, Lipkind HS, et al. Evaluation of the Association of Maternal Pertussis Vaccination With Obstetric Events and Birth Outcomes. JAMA. 2014;312(18):1897-1904. doi:10.1001/jama.2014.14823
Moro PL, Cragan J, Tepper N, Zheteyeva Y, Musser D, Lewis P, et al. Enhanced surveillance of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccines in pregnancy in the Vaccine Adverse Event Reporting System (VAERS), 2011-2015. Vaccine. 2016;34(20):2349-53.
Kharbanda E, O., Vazquez-Benitez G, Lipkind H, S., Klein, N. P., Cheetham, T. C., Naleway, A. L., ... & McCarthy, N. (2016). Maternal Tdap vaccination: Coverage and acute safety outcomes in the vaccine safety datalink, 2007-2013. Vaccine, 34(7), 966-973.

Pregnancy video

- <http://www.immune.org.nz/resources/videos>



That's a lot of information in
15minutes and I still haven't
given the vaccine!

Is it really a contraindication?

- I know he's overdue his needles but he's still getting over that bug and taking the pills the hospital gave him....
- What was he in hospital for?
- What pills?
- How is he today?

Contraindications to vaccines

Anaphylaxis

- To either a previous dose or a vaccine component

Temporary precaution

- **Moderate or severe acute illness**

Evolving neurological conditions

- Pertussis containing vaccine

Immunocompromised

- Live vaccines (MMR, Varicella, Zoster)

Is it really a contraindication?

- I know he's overdue his needles but he's still getting over that bug and taking the pills the hospital gave him....
- What was he in hospital for?
- What pills?
- How is he today?
- He's now also eligible for.....

Funded vaccines for special groups from 1 April 2018

Please refer to individual vaccines for detailed eligibility criteria and to the electronic *Immunisation Handbook 2017* for vaccine administration schedules

Asplenia – Functional or Pre- or Post-Splenectomy Immunisation Programme

- Hib, influenza, meningococcal, pneumococcal, and Tdap vaccines

Chemotherapy – following

- Hib, HPV, influenza, pneumococcal, Tdap, and varicella vaccines

Also consider immunosuppression for longer than 28 days

- Hepatitis B and meningococcal vaccines

Cochlear implant

- Hib, influenza, and pneumococcal vaccines

Error of metabolism at risk of major metabolic decompensation

- Influenza and varicella vaccines

Haematopoietic stem cell transplantation (HSCT) – following

- Hib, HPV, influenza, meningococcal, pneumococcal, Tdap, and varicella vaccines

Also consider immunosuppression for longer than 28 days

- Hepatitis B vaccine

Hepatitis A case – contact with

- Hepatitis A vaccine

Hepatitis B case – contact with Infants born to mothers who are hepatitis B surface antigen (HBsAg) positive

- Hepatitis B vaccine and hepatitis B immunoglobulin (HBIG) at birth

Household and sexual contacts of known acute hepatitis B cases or carriers

- Hepatitis B vaccine

Hepatitis C positive individual

- Hepatitis B vaccine

HIV positive individual

- Hepatitis B, Hib, influenza, meningococcal, pneumococcal, and varicella vaccines

Immune deficiency/immunosuppression

Individuals with an immune deficiency

- Influenza, meningococcal, and pneumococcal vaccines

Household contacts of children or adults who will be/are immunosuppressed

- Varicella vaccine

Prior to elective immunosuppression for longer than 28 days

- Varicella vaccine

Following immunosuppression for longer than 28 days

- Hepatitis B, Hib, influenza, meningococcal, and Tdap vaccines

Influenza Immunisation Programme

» Pregnancy,

» Children aged 6 months to under 5 years who have been hospitalised for respiratory illness,

or have a history of significant respiratory illness,

» Individuals aged 6 months to under 65 years with an eligible medical condition,

» Individuals aged 65 years or older.

- Influenza vaccine

Kidney disease

- Hepatitis B, Hib, influenza, pneumococcal, Tdap, and varicella vaccines

Liver disease

- Hepatitis A and varicella vaccines

Meningococcal disease case – contact with

- Meningococcal vaccine

Needle stick injury – following

- Hepatitis B vaccine

Non-consensual sexual intercourse – following

- Hepatitis B vaccine

Pneumococcal disease – increased risk

- Additional pneumococcal vaccine

Pregnancy

- Influenza and Tdap vaccines in every pregnancy

Rubella – women of childbearing age who are not immune to rubella

- MMR vaccine

Solid organ transplantation

Prior to solid organ transplantation

- Hib, meningococcal, pneumococcal, Tdap, and varicella vaccines

Following solid organ transplantation

- Hepatitis A, hepatitis B, Hib, HPV, influenza, meningococcal, pneumococcal, and Tdap vaccines

Tuberculosis – infants and children aged under 5 years at risk of tuberculosis (TB) exposure

- BCG vaccine

VACCINE KEY

BCG: tuberculosis

Hib: *Haemophilus influenzae* type b

HPV: human papillomavirus

MMR: measles, mumps, rubella

Tdap: tetanus, diphtheria, acellular pertussis

Varicella: chickenpox



**The Immunisation
Advisory Centre**

For more details, visit immune.org.nz

That's complicated, more
vaccines to give and I still haven't
given the vaccine!

Know your real contraindications

- My patient is on (insert medication name here), can he have the shingles/mmr/varcella vaccine....
- Do you actually know what the medicine is?
- Why are they on it?
- How long, how much?

Diseases and medications when live vaccines may be contraindicated (Immune system dysfunction and live attenuated viral vaccines)



The Immunisation
Advisory Centre

Key point

If there is any doubt about the safety of administering a live attenuated viral vaccine –
DEFER VACCINATION until you obtain more information.

The recent addition of the live attenuated herpes zoster vaccine (Zostavax®) for adults aged 65–80 years inclusively has highlighted some challenges assessing the safety of live attenuated viral (LAV) vaccine administration to adults who have one or more comorbidities.

LAV vaccines such as rotavirus, measles, mumps and rubella, varicella or zoster vaccines are contraindicated for pregnant women, people with anaphylaxis to a previous dose of the vaccine or vaccine ingredient, and some people with immune system dysfunction. The purpose of this fact sheet is to highlight conditions and treatments associated with immune system dysfunction and provide recommendations for the administration, delay or contraindication of LAV vaccines.

Immune system dysfunction is a broad term to identify altered immune system function that results in an impaired ability to mount an immune response to fight off infection at one end of the continuum and at the opposite end, a dysregulated immune system control mechanism that enhances the natural anti-tumour response but can also stimulate autoimmunity.

- » Conditions associated with primary and secondary immunodeficiency are listed in Table 1.
- » Immunosuppressive and immunostimulatory treatments[#] are listed in alphabetical order by generic name in Table 2 and by trade name in Table 3.

[#]Please note that the LAV vaccine recommendations in Table 1 and 2 apply when treatments are used singly. There are no data on possible risk stacking effects on immune system dysfunction with the combination of two or more treatments.



The following questions will help us decide if it is appropriate for you/your child to be vaccinated today. These questions relate to the person being vaccinated. Answering “yes” to any question, does not necessarily mean you/your child won’t be vaccinated. It means that we will need to ask some extra questions. If you do not understand a question, please ask your health professional to explain.

Name:	Date of birth:		
Questions:	Yes	No	Unsure
Are you/your child feeling well today?			
Have you/your child ever had a serious allergic reaction (to anything)?			
Have you/your child ever had a serious reaction to any vaccine?			
Have you/your child received any other vaccines in the last 4 weeks?			
Do you/your child have a bleeding problem or blood disorder?			
Have you/your child received any blood products in the last 12mths, or are due to receive blood products? e.g. blood transfusion or immunoglobulin			
Are you pregnant or trying to get pregnant?			
Do you/your child have any medical conditions?			
Have you/your child had any medical conditions in the past?			
Do you/your child have any other immune system problems you know of?			
Have you/your child taken any medications or received any treatments that could affect your immune system such as: - Steroid medicines (e.g. prednisone) to manage breathing problems? - Cancer treatment? - Medications for the management of conditions such as rheumatoid arthritis, multiple sclerosis, Crohn’s disease or ulcerative colitis, psoriasis, polymyalgia, rheumatic or similar?			
Are you/your child on any treatment to prevent cold sores, herpes or shingles?			
Have you ever been told you/your child should not receive live vaccines?			
Are you/your child taking any medications that were not prescribed at this practice?			
For infants under 8mths of age: Did the infant’s mother receive any treatments that may have affected her immune system while she was pregnant?			

Signing this form does not mean that you have consented to receive a vaccine. Your health professional will discuss the benefits, possible risks, and expected vaccine responses and answer any questions you have before proceeding with vaccination.

Form completed by:

Date:

Potential screening outcomes:

- **There are no contraindications to vaccination.** Follow your usual informed consent process and fully document this in the patient notes.
- **Vaccination is deferred.** Advise patient of the outcome and why. Let them know when to come back for vaccination and if possible, make an appointment.
- **Vaccination is contraindicated.** Advise patient of the outcome and why.
- **Specialist opinion is required.** Discuss how the specialist’s advice will be sought and approximately when you will advise whether they can have the vaccination.

All Vaccines: Questions	Rationale
Are you/your child feeling well today?	General screening for acute moderate/severe illness.
Have you/your child ever had a serious allergic reaction (to anything)?	Screening for history of anaphylaxis to a vaccine or vaccine component e.g. neomycin or gelatin.
Have you/your child ever had a serious reaction to any vaccine?	Screening for any other serious reaction e.g. HHE or arthus reaction.
Have you ever been told you/your child should not receive certain vaccines?	Screening for possible medical contraindications
What other vaccinations have you/your child received? - What vaccines did you receive? - When did you receive the vaccination? - Who gave you your last vaccination?	To ensure appropriate spacing between vaccines with same antigens and avoid repeating already administered vaccines. This information should be confirmed with NIR status query and/or review of information held in medical records. Live injected vaccines either need to be given on same day or with a minimum gap of 4 weeks between the live vaccine doses.
Do you/your child have a bleeding problems or blood disorders?	Screening for prolonged bleeding/haematoma risk post vaccination. Consider administering via subcutaneous route if appropriate. Patients who are stable on blood thinning medications, can usually receive vaccines via the intramuscular route. After vaccination, apply firm pressure to the site without rubbing for 10 minutes.
Do you/your child have any medical conditions or take any regular medications?	Some patients may be eligible for more vaccinations because of medical conditions or certain medications.
Have you/your child had any medical conditions in the past?	See the Influenza kit for specific medication contraindications for Influenza vaccination. Check practice management system for any medications that are listed there.

So there are resources, to help ensure safety but I still haven't given the vaccine!

Do vaccines work?

Population 100 people, vaccine 85% effective, population never seen disease before

% Vaccinated	0%	50%	90%
Number vaccinated	0	50	90
Number who get disease	100	58	23
Number vaccinated who get disease	0 (0%)	8 (14%)	13 (57%)

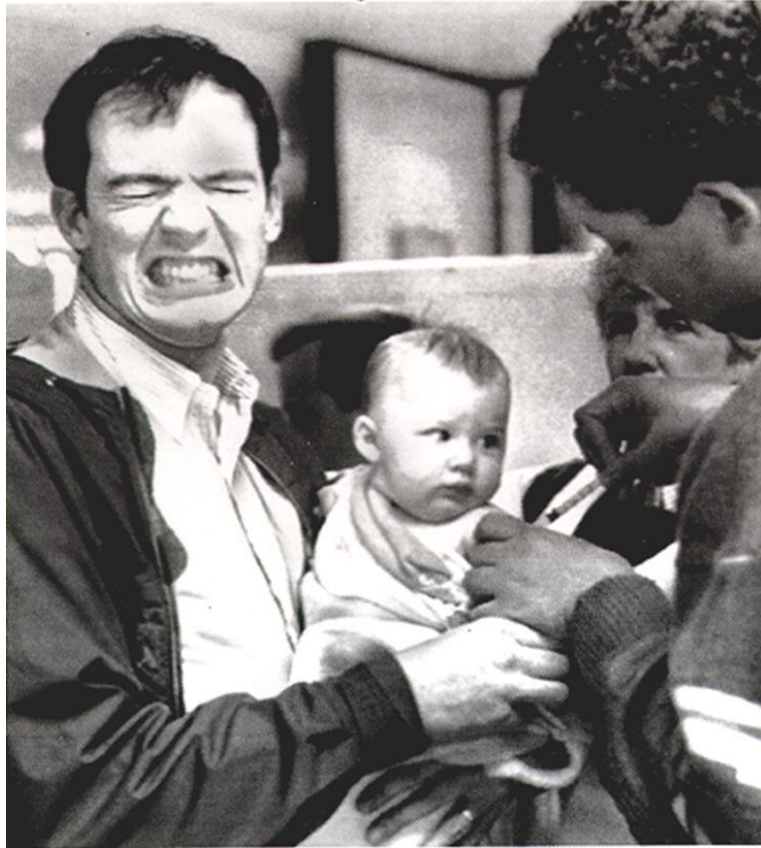
Does the vaccine work?

Disease is real and vaccines do work

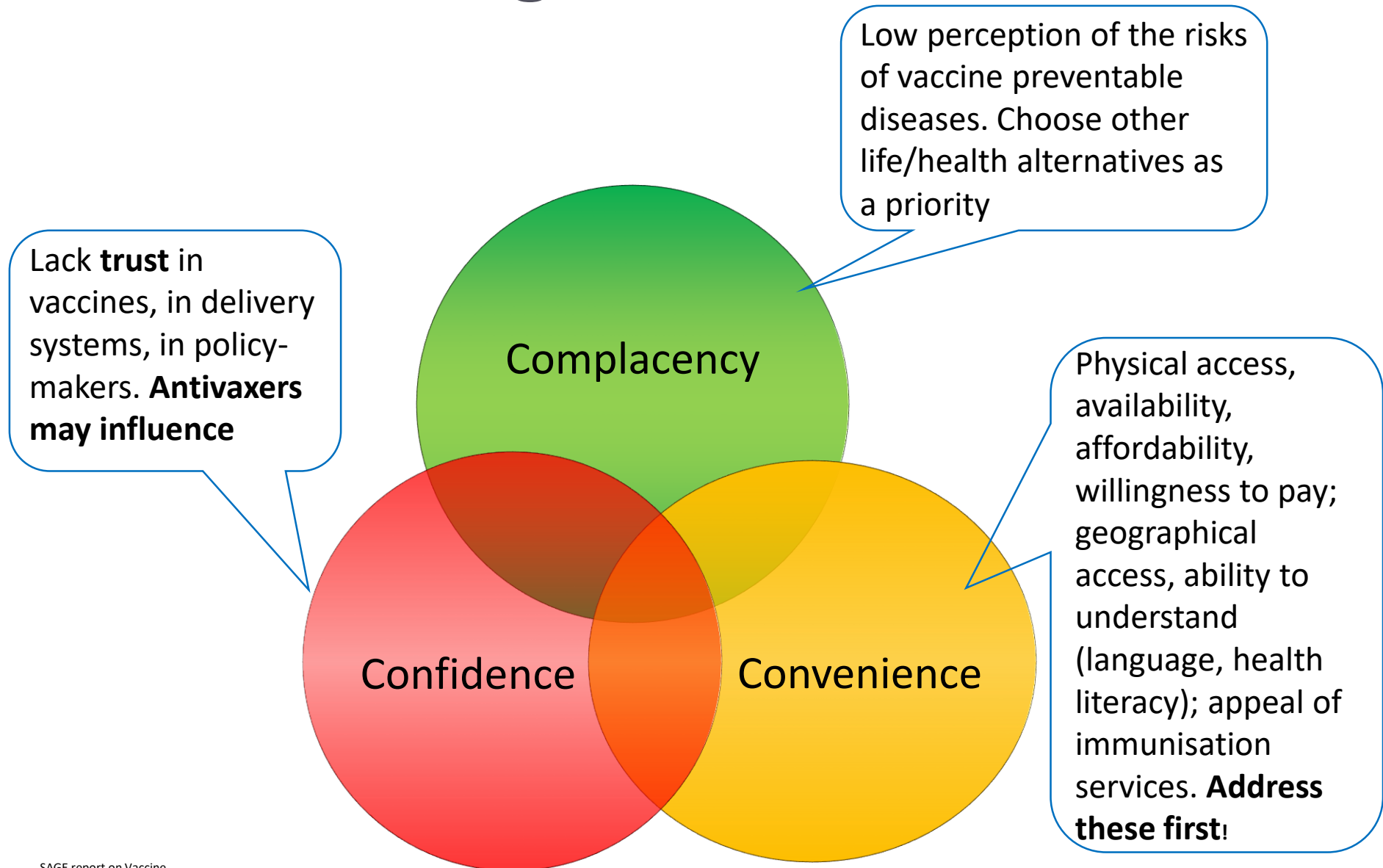
- If most people vaccinate why have we got a measles outbreaks.....
- 1.6 million population
- Vaccine 95-99% effective
- Need 95% coverage to break disease transmission
- Coverage variable across age groups but most vaccinated or immune
- 1 infected person can infect up to 18 non immune people
- 262 cases of diseases
- **14 cases in vaccinated population, 248 in unvaccinated**
- Does the vaccine work?

I've done lots of talking but I still
haven't given the vaccine!

Let's make it a nice experience



Factors influencing decisions: The WHO's 3 Cs



WHO key pain mitigation strategies

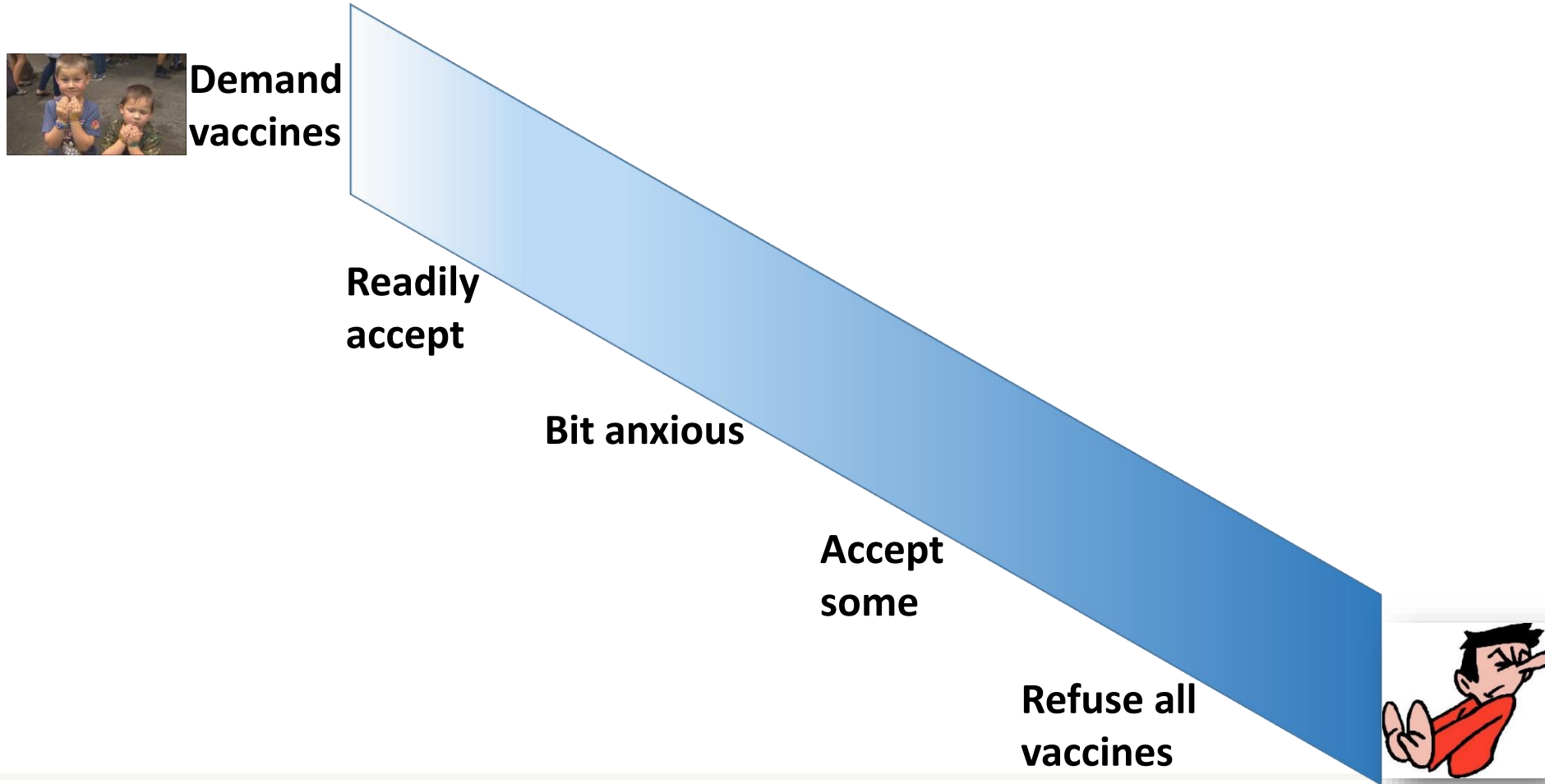


Avoid syringe aspiration
Encourage breastfeeding during vaccination
Administer vaccines in order of <i>increasing</i> pain
Neutral verbal cues – calm explanations, avoid <i>excessive</i> reassurance & anxiety promoting terms
World Health Organization (2015) Reducing pain at the time of vaccination WHO position paper

Other pain mitigation strategies

	Give rotavirus vaccine first	• High sucrose • 6 weeks & 3 months
	Young child	• Sit upright • Hold comfortably • Explain prior to visit
	Abdominal breathing	• Anxious children and parents
	Use distraction	• Toy or book • Bubbles held by child • Counting or talking
	IMAC (2016) Mitigating vaccination pain and distress factsheet	

Vaccine hesitancy another way to look at it- we all exist on a continuum



Immunisation Advisory Centre How can we help?



**Don't forget
to take the
session survey!**

