

# Vaccine Cold Chain Wastage



- The National Vaccine Storage Guidelines Strive for Five (2013, 2nd edition) provide general recommendations for the management and storage of vaccines to ensure the administration of effective vaccines
- Under the National Partnership Agreement of Essential Vaccines, vaccine wastage must be <10%
- NSW wastage has reached as high as 9% in recent years

## **AIM**

Health



# Thermostability data



To pilot the feasibility of adopting new cold chain management procedures using new vaccine thermostability data in NSW

NSW immunication Schedule CONFIDENTIAL NATIONAL IMMUNISATION PROGRAM (NIP) VACCINES							
Variety CYC HER CRYC HORSE CATC							
Advert							
Adacel	*Discard +0*C	Ciscord	Discard				
Adacel Polio	Discard	Ciscord	Discard				
ADT Doonter	*Discussi +9*0	Cricini	Decard				
Doundrite	*Discord +3*0	Maximum 7 days	Discord				
Boostric PV	*Discard +0*0	Maximum cumulative time 3 days	Discard				
Engerte B (pand)	*Discard +0*0	Maximum 1 month	Mastron I weak				
Engerix B (solut)	*Discard +0*C	Maximum 1 month	Maximum 1 week				
Fixarix Tetra	*Discard +0*C	Maximum ournulative time 3 days	Discard				
Filospolacht junior Filospolacht (stoff)	"Discust 49"C	Chicard	Discard				
Gardasil .	*Discard +0*0	Maximum cumulative time 3 days	Discard				
Havris	*Discard +0*0	Maximum-cumulative time 3 days	Discard				
II O Vac II (adult & pand)	Multiple excursions between 0 and 2°C up to 28 days. Discard below 0°C	Marinum 3 days	Decard				
Imagen	Contact Invascripation Unit	Contact Immunisation Unit	Contact Immunisation Unit				
Infantix	*Discard +0*C	7 days cumulative	Discard				

#### Rationale



- A retrospective audit of cold chain wastage for one month in April  $\overset{\cdot}{2}$ 016 indicated that applying thermostability data could result in significant savings (\$170K)
- Although vaccine thermostability data are available, there are additional cold chain management procedures required from immunisation providers to utilise the thermostability data effectively:
  - Liaise with their local public health unit
  - apply labels to affected vaccine stock
  - rotate stock
  - inform all staff

#### **Procedures**





- Established working group
- Consulted with PHUs
- Developed pilot protocol and associated documentation
- Developed evaluation plan
- Designed vaccine labels
- Developed post-pilot survey tools for GPs and PHUs

### ALERT!

These vaccines have been exposed to a cold chain breach outside +2°C and +8°C and are OK to use within their expiry date. THEY MUST BE USED BEFORE ANY OTHER VACCINE STOCK.

DATE OF COLD CHAIN BREACH:

1

## The pilot



- Conducted between 4<sup>th</sup> December 2017 to 18<sup>th</sup> March 2018
- 11 out of 15 PHUs participated
- One of the 11 PHUs did not report any breaches during the pilot period

## **Evaluation**



#### **Process**

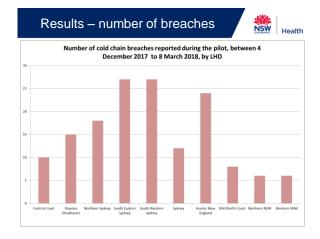
- Practice
- Attitudes to and impacts of the change from the practice perspective and identify any associated issues
- PHUs
  - Determine how each PHU managed each cold chain breach and any implementation issues encountered

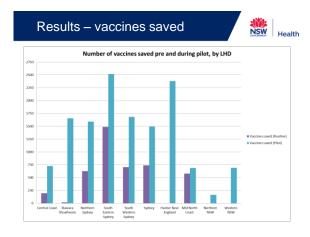
#### **Impact**

- Pilot PHUs
- Impact of the pilot on cold chain management efficiencies will be measured in staff time pre and during the pilot
- Immunisation Unit
  - Log time taken to manage cold chain breaches pre and during pilot

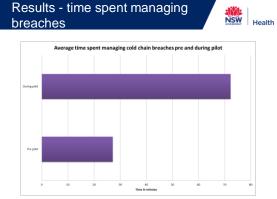
## Outcome

- · Vaccine wastage and staff time costs to identify financial impact
- An analysis will be conducted on the costs of the vaccines that were saved compared to routine practice, and staff time costs (PHU and Immunisation Unit)









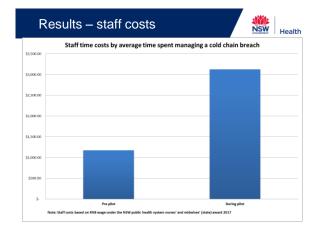
# Results - average time spent managing breaches





Pre-pilot - participating PHUs	During pilot – participating PHUs				
27.15 mins	72.5 mins				

Immunisation Unit had an average increase of 7 mins managing breaches during the pilot compared to before



# Results - savings





PHU	Wastage Cost (Routine)		Wastage Cost (Pilot)		Total Savings		
Participating							
Central Coast	\$	33,767.50	\$	13,472.86	\$	33,767.50	
Illawara Shoalhaven	\$	72,206.43	\$	22,816.52	\$	49,389.91	
Northern Sydney	\$	135,840.76	\$	39,460.13	\$	96,380.63	
South Eastern Sydney	\$	72,188.44	\$	26,609.98	\$	45,578.46	
South Western Sydney	\$	145,820.66	\$	100,202.89	\$	45,617.77	
Sydney	\$	40,308.54	\$	11,308.89	\$	28,999.65	
Hunter New England	\$	120,282.52	\$	38,854.21	\$	81,428.31	
Mid North Coast	\$	15,562.54	\$	10,863.25	\$	4,699.29	
Northern NSW	\$	11,667.39	\$	6,133.60	\$	5,533.79	
Western NSW	\$	39,158.81	\$	9,243.57	\$	29,915.24	
Total	\$	686,803.59	\$	278,965.90	\$	407,837.69	

# Results – PHU survey





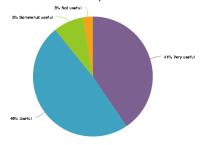
PHU RESPONSES					
PHU vaccine wastage pilot template: How useful were the resources provided to conduct the pilot?	Very useful: 5 Useful: 6 Somewhat useful: 1 Not useful: 0				
Vaccine cold chain wastage pilot procedures: How useful were the resources provided to conduct the pilot?	Very Useful: 5 Useful: 4 Somewhat Useful: 2 Not Useful: 1				
PHU cold chain breach risk assessment checklist: How useful were the resources provided to conduct the pilot?	Very Useful: 4 Useful: 5 Somewhat Useful: 1 Not Useful: 2				
How useful was the vaccine thermostability data?	Very Useful: 10 Useful: 2 Somewhat Useful: 0 Not Useful: 0				
Did you encounter any implementation issues?	Yes: 7 No: 5				
Overall, how satisfied were you with the new cold chain requirements to implement the pilot?	Very satisfied: 3 Satisfied: 3 Neutral: 4 Dissatisfied: 2				

# Results - GP survey





#### How useful were the resources provided

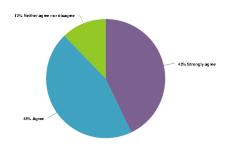


# Results – GP survey





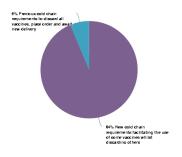
Do you agree that the new cold chain requirements would be useful to implement on an on-going basis?



# Results- GP survey



Please indicate your preference for managing cold chain breaches in the future



## Conclusion



- The pilot demonstrated significant cost savings in ALL participating PHUs (>\$400,000)
- The number of vaccines saved decreased significantly in all participating PHUs
- Increased time required to implement processes by PHUs
- 94% GP practices supported ongoing use of thermostability data and implementation requirements
- PHU's generally supported the implementation requirements, however time constraints were reported
- Workshop required to streamline processes for future adoption

# Acknowledgements



- Participating Public Health Units
- Paola Garcia, Kara Clarke, Project Officers, Immunisation
- NCIRS staff
- Vaccine manufacturers

## Questions





