Development and use of an automated ELECTRONIC VACCINATION DATABASE for a volunteer deployable workforce



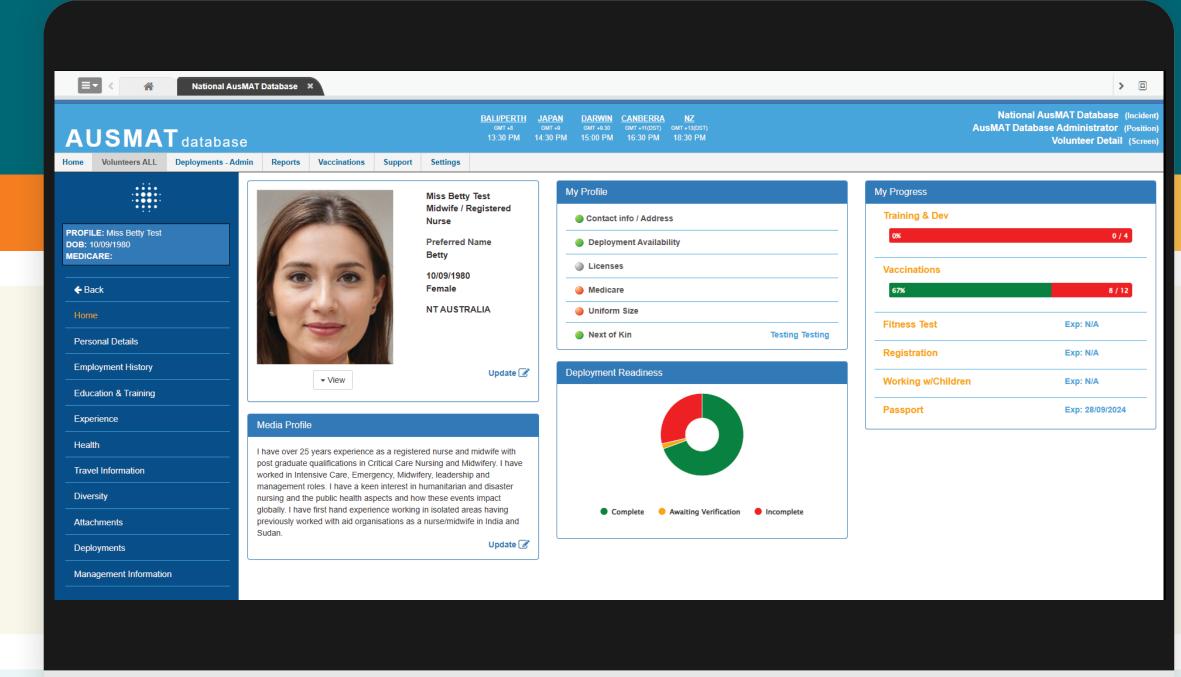


AUTHORS

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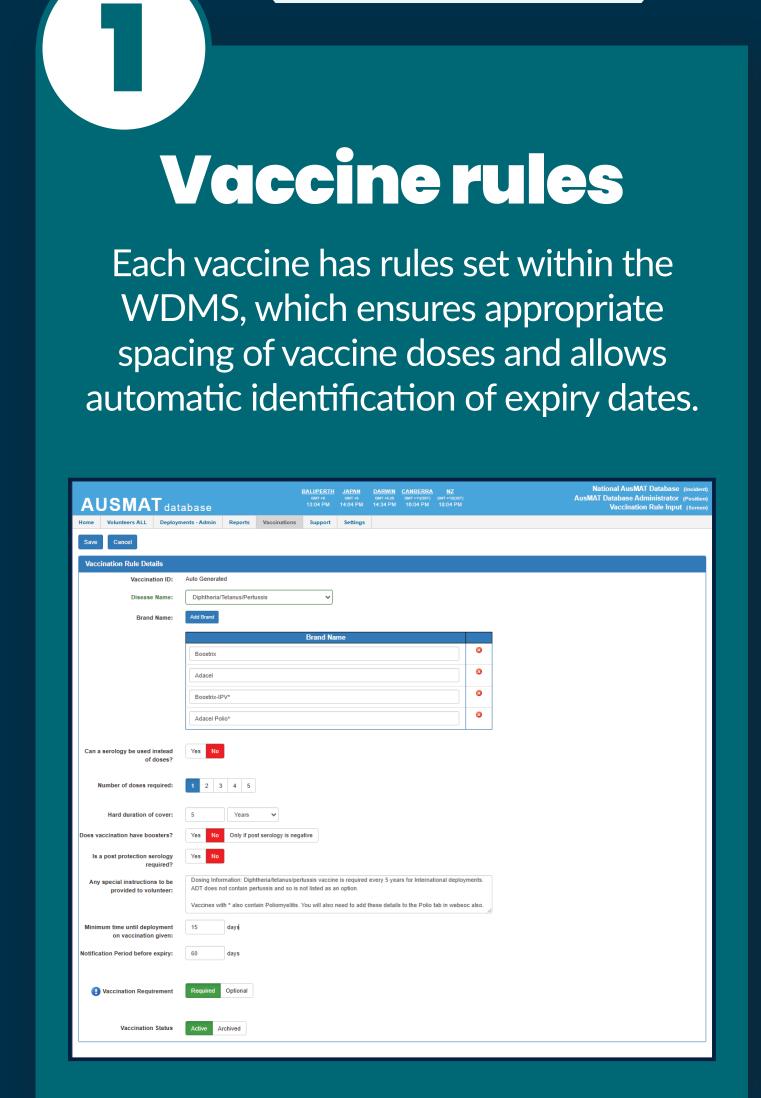
Background

- >>> The National Critical Care and Trauma Response Centre maintains the AUSMAT Workforce and Deployment Management System (WDMS) with approximately 600 active members across Australia.
- ≫ Deployments both national and international can occur at very short notice.
- » It is critical that all team members are appropriately immunised for diseases specific to the deployment location.



WDMS captures information relevant to deployment, including professional qualifications, next of kin details, immunisation records, and more.

Method



Vaccine upload and verification

Vaccine records are uploaded to WDMS by the pharmacy technician, and verified by the pharmacist.

atient Consent Sign Drug	Dose/Serology		(administration, record on NT immunisation) Dose Dose		Ĭ	
	Serology		Date			
Rabies Vaccine 1ml IM	Date		Site/Route			
After Initial 3 dose course	Level		Brand			
and booster at 1 year, 3	Next Due		Batch # Next Due:			
yearly serology (give a booster if	IVCX D	ac .	Admin Sign			
negativeVNAb<0.5IU/mL)			Clinic			
Cholera Vaccine	Dose 1	or Booster	Dose 2 (D7-42)			
(Dukoral)	Date: Site: Oral		Date:			
1 amp Oral			Site: Oral	Naut Duas		
Give booster within 2	Batch #:		Batch #:	Next Due:		
years of 2 dose course 1- 6 weeks apart, if not redo	Admin Sign:		Admin Sign:			
2 dose course	Clinic:		Clinic			
	Injection IM		Typhoid 3 dose oral	Typhoid 4 dose oral		
Typhoid Vaccine	Date:		Date:	Date:	_	
1 dose given every 3	Site/Ro	ute:	Site/Route:	Site/Route:	1	
years for injection, 3 dose oral every 3 years, 4 dose	Brand:		Brand:	Brand:	Next Due:	
oral every 5 years	Batch #		Batch #:	Batch #:	1	
(Shake before use)	Admin Sign:		Admin Sign:	Admin Sign:		
	Clinic		Clinic	Clinic		
Influenza Vaccine 1 dose given annually	Date:		Batch #:	Date:	Batch #:	
	Site/Route:		Admin Sign:	Site/Route:	Admin Sign:	
	Brand:		Clinic:	Brand:	Clinic	
Polio Vaccine	Date:		Batch #:			
1 dose given every 10	Site/Route:		Admin Sign:	Next Due:		
years	Brand:		Clinic:			
Tetanus, Diphtheria	Date: 07/08/20225					
& Pertussis Vaccine	Site/Route: IM Brand: Boostrix					
0.5ml IM			Next Due:			
1 dose given every 5			Next Due:			
years						
	Clinic NCCTRC					
	Dose 1		Dose 2	Booster	Booster	
COVID-19	Brand:		Brand:	Pfizer/Moderna	Pfizer/Moderna	
Vaccine IM	Date:		Date:	Date:	Date:	
2 doses (variable interval depending on brand) and	Site/Route:		Site/Route:	Site/Route:	Site/Route:	
Booster from 3 months	Batch #:		Batch #:	Batch #:	Batch #:	
post 2 nd dose	Admin sign:		Admin sign:	Admin sign:	Admin sign:	
	Clinic:		Clinic:	Clinic:	Clinic:	
Japanese	Imojev® Brand		JESpect® Brand	JESpect® Brand	1	
Encephalitis* Vaccine	Date: Site/Route: Batch #: Admin Sign:		D0 Date:	D28 Date:		
Vaccine [1 dose for Imojev OR 2			Site/Route: Batch #:	Site/Route: Batch #:	Next Due:	
doses for JEspect]			Admin Sign:	Admin Sign:		
Booster every 2 years	Clinic		Clinic	Clinic		
JeSpect, 5years Imojev	Cillic		Cillic	Cirric		
Doctor Name:		Dr Signature:			Date:	

Approved Rejected

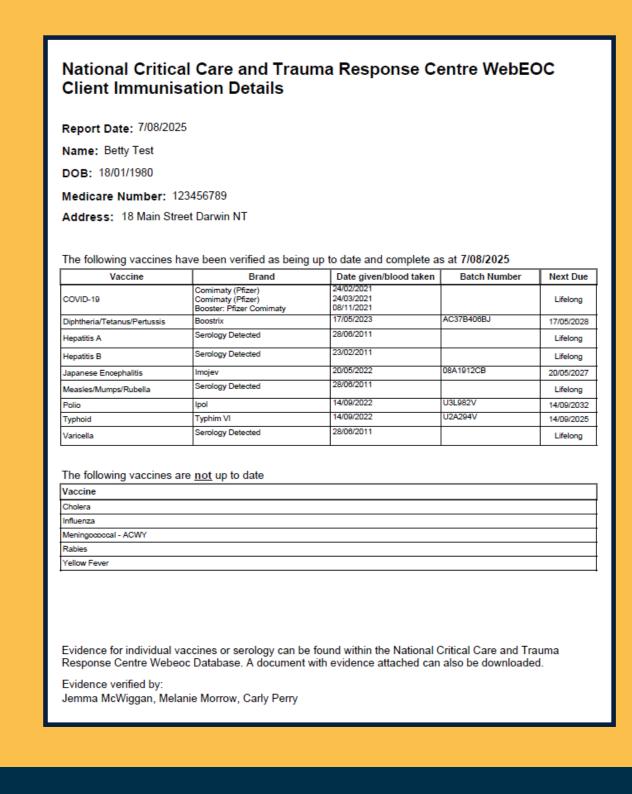
Traffic lights

Vaccination status can be easily seen with a traffic light system green (up to date), orange (expiring soon), red (not immune).

AUSMATda	tabase		BALI/PERTH JAPAN DARV GMT+8 GMT+9 GMT+9 13:14 PM 14:14 PM 14:44				onal AusMAT Database (In Database Administrator (Po Volunteer Detail ()
		Reports Vaccinations	Support Settings				
	Health Details	Vaccinations Fitne	ss Test				
PROFILE: Miss Betty Test DOB: 10/09/1980 MEDICARE:	⊘ Manto	oux Test Mantoux:			✓ Vaccination Notes Hospital Record		
← Back		ite of Mantoux: Size of Result:			#: Vaccination Notes:		
Home							
Personal Details							-
Employment History	Vaccination	ons					di di
Education & Training	Vaccinal	tions Optional Vaccination	ons Archived Vaccinations (18) Deleted Vaccinal	tions (8)		
Experience	*	Vaccination Name *	Brand	Serology	♦ Doses	Expiry Date	Boosters Detail
Health		Cholera					
Travel Information		COVID-19	Dose 1: Dose 2:	NA	Required: 2 Completed: 2	Lifelong (Current)	1
Diversity		Diphtheria/Tetanus/Pertussis	Dose 1: Boostrix	NA	Required: 1 Completed: 1	07/08/2030 (Current)	N/A
Attachments Deployments		Hepatitis A	Dose 1: Avaxim Dose 2: Avaxim	N/A	Required: 2 Completed: 2	Lifelong (Current)	N/A
Management Information		Hepatitis B	Dose 1: H-B Vax II Dose 2: H-B Vax II Dose 3: H-B Vax II	N/A	Required: 3 Completed: 3	Lifelong (Current)	N/A
		Influenza	Dose 1: Afluria Quad 2023	NA	Required: 1 Completed: 1	31/12/2022 (Expired)	N/A
		Japanese Encephalitis	Dose 1:	N/A	Required: 1 Completed: 1	10/05/2028 (Current)	0
		Measles/Mumps/Rubella	Dose 1: Dose 2:	N/A	Required: 2 Completed: 2	Lifelong (Current)	N/A
		Polio					
		Rabies	Dose 1: Merieux Dose 2: Merieux Dose 3: Merieux Dose 4: Merieux	N/A	Required: 4 Completed: 4	Lifelong (Current)	N/A
		Typhoid	Dose 1: Dose 2: Dose 3: Dose 4:	NA	Required: 1 Completed: 4	01/09/2025 (Expiring)	N/A
		Varicella		Serology Detected		Lifelong (Current)	N/A

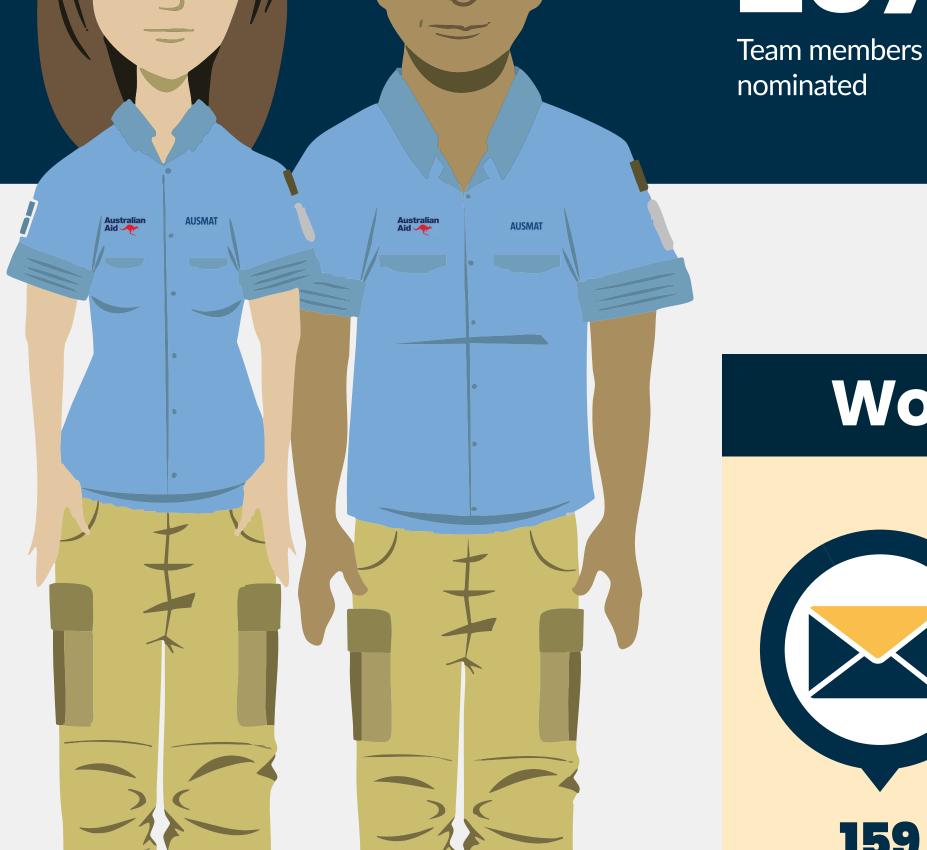
Proof of immunisation

The WDMS allows easy and fast immunisation status checking to clear team members for deployment.



Results

Recent Deployment in December 2024 (30 team members deployed)



207

At initial preparation stage of deployment



102 (49%) Team members required further vaccines

After pharmacist communications

68 (33%)

Team members

Team members

supplied evidence of

previous vaccines

received a total of 120 'just-in-time' vaccines

179 (86%)

of nominated team members fully immunised for this deployment after follow up.

At time of

deployment

Workload to review vaccines



159 Emails



Phone calls



Records uploaded and verified

Conclusion

- » A significant number of team members required 'just-in-time' booster doses.
- "Just-in-time' doses are very labour intensive in a time-critical situation."
- >>> Future work aims to increase the number of fully vaccinated team members and reduce the need for 'just-in-time' vaccinations.

Future Works

- » Automated email notifications sent to team members when vaccines are expiring soon.
- » Pilot a reimbursement system for team members to improve the timeliness of booster doses.