

Progress towards triple elimination in the Pacific - a systematic review

Bell L, van Gemert C, Allard N, Brink A, Chan PL, Cowie B, Hellard M, Homer CS, Howell J, O'Connor M, Hocking J.

Progress towards triple elimination of mother-to-child transmission of HIV, hepatitis B and syphilis in Pacific Island Countries and Territories: a systematic review. The Lancet Regional Health-Western Pacific. 2023 Jun 1;35.



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reach for the many



At Burnet Institute, we proudly acknowledge the Boon Wurrung people of the Kulin Nations as the Traditional Custodians of the land on which our office is located and recognise their continuing connection to land, waters and community. We acknowledge Aboriginal and Torres Strait Islander peoples as Australia's First Peoples and acknowledge that sovereignty was never ceded. We pay our respect to Elders past and present, and extend that respect to all First Nations people.





Introduction

- Transmission of HIV, hepatitis B and syphilis from mother to child is preventable using similar interventions
- There are several global EMTCT guidelines available
- This systematic review used the guidelines in the Regional Framework for the triple elimination of mother-to-child transmission of HIV, Hepatitis B and syphilis in Asia and the Pacific, 2018-2030



REGIONAL FRAMEWORK FOR

The Triple Elimination of Mother-to-Child Transmission of HIV, Hepatitis B and Syphilis in Asia and the Pacific, 2018–2030





Targets from the Regional Framework

IMPACT TARGETS	
<p>< 50 new paediatric HIV infection per 100 000 live births HIV MTCT rate < 5% or < 2% ≤ 0.1% prevalence of HBsAg among children ≤ 50 congenital syphilis cases per 100 000 live births</p>	
2020 MILESTONES	2030 TARGETS
<ul style="list-style-type: none">- Coordination mechanism for EMTCT established- Coordinated EMTCT plan developed- EMTCT indicators included in national health information system	<ul style="list-style-type: none">- National RMNCH policy includes EMTCT as standard component- Universal access to core EMTCT services- Coordinated monitoring through interlinked system
PROGRAMME TARGETS (95+)	
<ul style="list-style-type: none">- Antenatal care coverage ≥ 95%- Births attended by skilled health personnel ≥ 95%- Antenatal HIV, hepatitis B and syphilis screening ≥ 95%- Treatment coverage (HIV and syphilis) ≥ 95%- Hepatitis B vaccine birth-dose coverage ≥ 95%- Hepatitis B vaccine third-dose coverage ≥ 95%	



Review aim

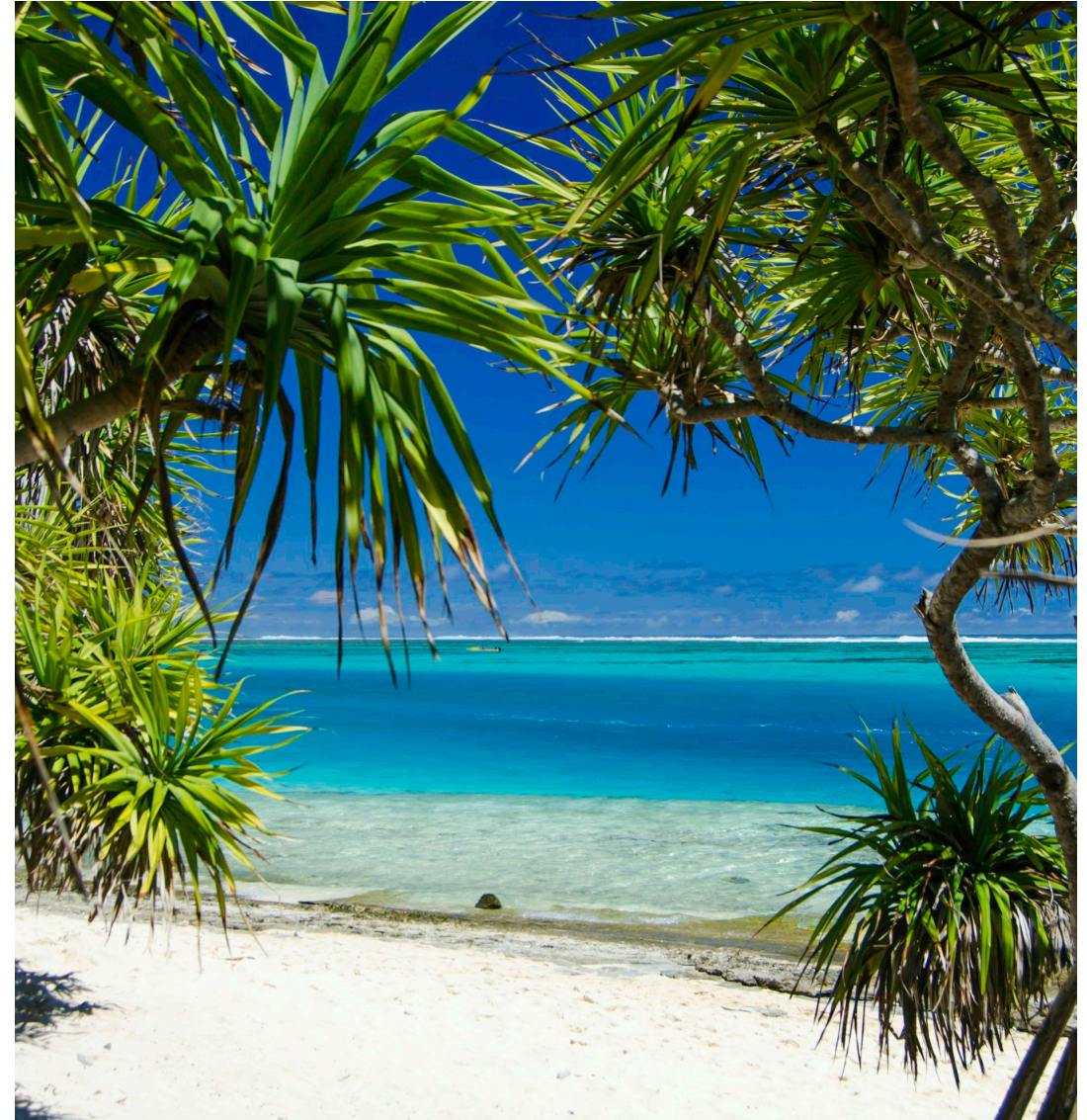
This study aimed to use available data (in peer-reviewed literature, grey literature, and global databases) to:

- Assess availability of data required to report on indicators in the Regional EMTCT Framework in Pacific Island Countries
- Describe progress towards reaching these targets
- Describe the epidemiology of HIV, hepatitis B, and syphilis infection in pregnant women and children in the Pacific



HIV, hep B, and syphilis in the Pacific

- Low rates of HIV with a generalised epidemic in Papua New Guinea and increasing rates in Fiji
- Hepatitis B and syphilis rates are variable with some PICTs having very low rates and others amongst the highest in the world
- Limited publicly available information



Data availability



	Epidemiological data			Process indicators											Impact indicators				
	HBsAg among pregnant women	HIV positivity among pregnant women	Syphilis positivity among pregnant women	Antenatal care coverage at least once (ANCI)	Antenatal care coverage at least four times (ANC4)	Proportion of births attended by skilled health personnel	Antenatal HIV screening	Antenatal hepatitis B screening	Antenatal syphilis screening	Antenatal HIV treatment coverage	Antenatal syphilis treatment coverage	Stillbirth rate	Hepatitis B birth dose coverage (timely)	Hepatitis B birth dose coverage (ever)	Hepatitis B third dose coverage	Paediatric HIV infections per 100,000 live births	Mother-to-child transmission rate of HIV	HBsAg positivity among children	Congenital syphilis cases per 100,000 live births
American Samoa														•*	•				•
Cook Islands	•		•					•		•	•	•	•	•	•			•	•
Federated States of Micronesia			•					•	•	•	•	•	•	•*	•			•	•
Fiji	•		•		•	•		•	•	•	•	•	•	•**	•			•	•
French Polynesia													•	•	•			•	
Guam	•			•	•		•	•	•				•						•
Kiribati			•	•	•	•		•	•	•	•	•	•	•			•	•	
Marshall Islands			•	•	•	•		•	•	•	•	•	•*	•	•			•	
Nauru			•					•	•	•	•	•	•	•	•			•	•
New Caledonia		•	•																
Niue						•					•	•			•			•	
Northern Mariana Islands													•*	•					•
Palau			•	•	•	•		•	•	•	•	•	•*	•	•			•	
Papua New Guinea		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Pitcairn Island																			
Samoa			•	•	•	•		•	•	•	•	•			•			•	
Solomon Islands	•		•	•	•	•		•	•	•	•	•			•			•	
Tokelau													•	•	•			•	
Tonga			•	•	•	•		•	•	•	•	•			•			•	•
Tuvalu			•			•		•	•	•	•	•			•			•	
Vanuatu			•	•	•	•		•	•	•	•	•			•			•	
Wallis and Futuna													•	•				•	

- literature review
- database review
- grey literature

*BD within 3 days of birth

**reports BD within 2 days

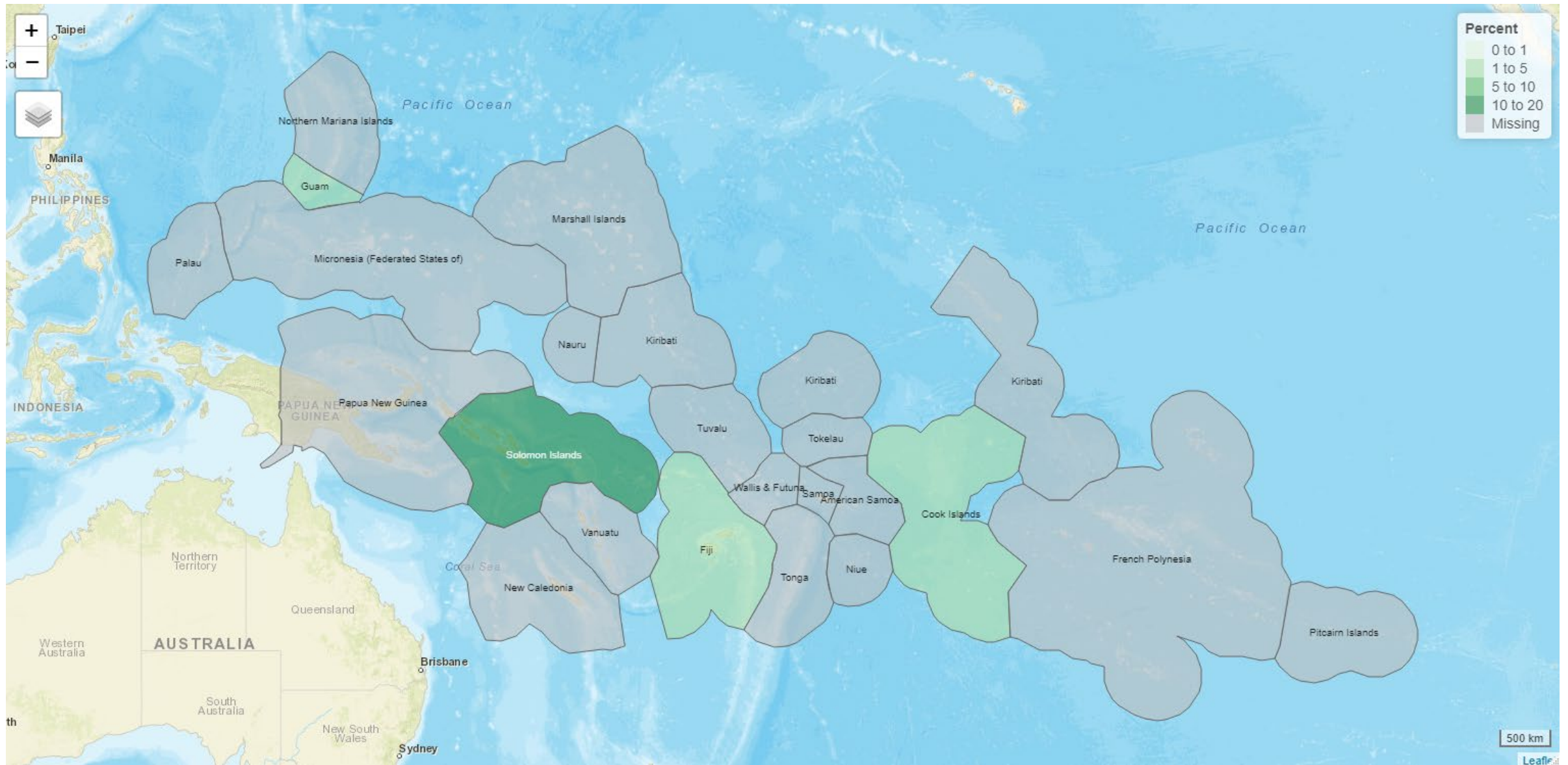
Process indicators



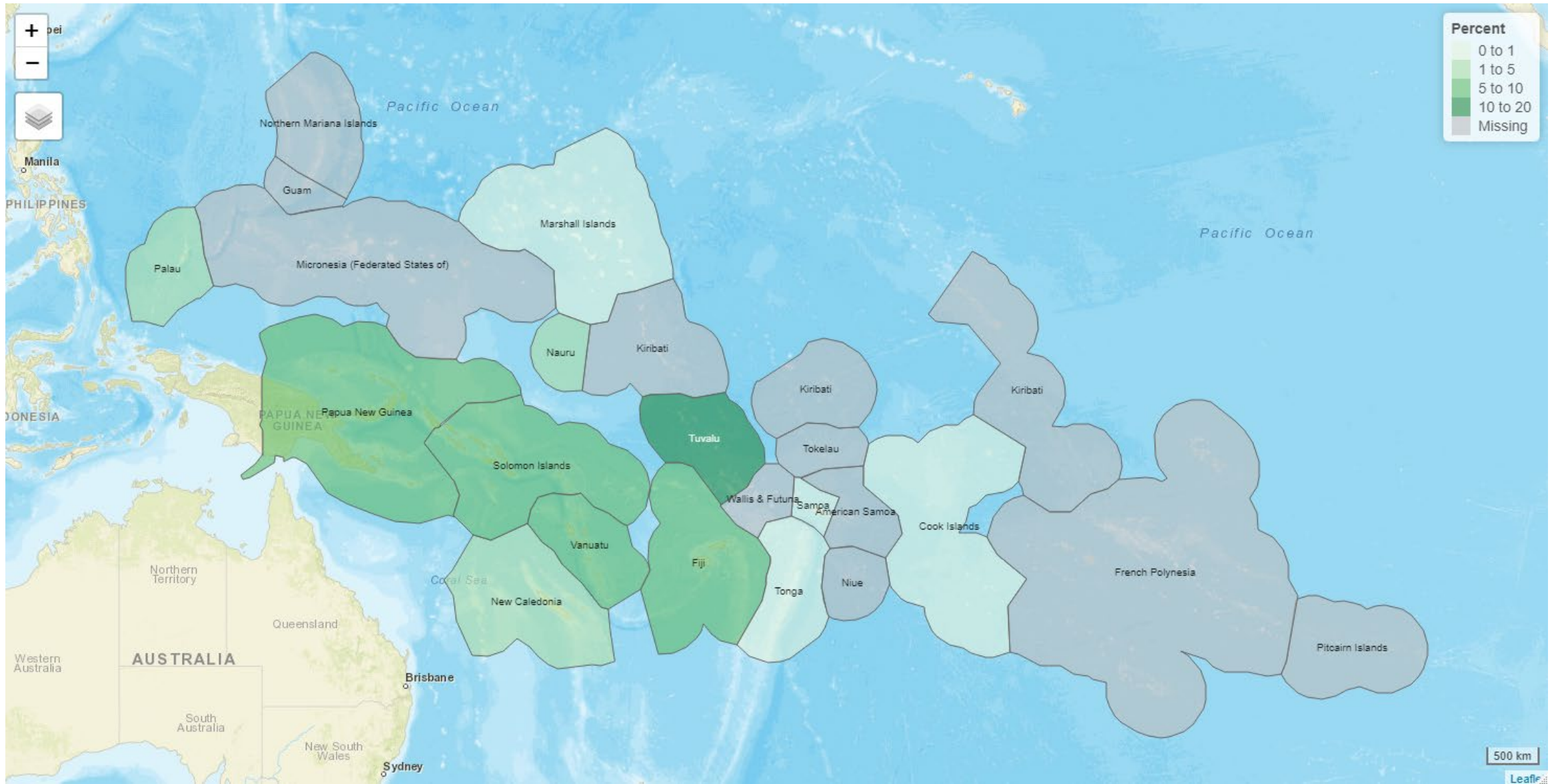
	Antenatal care coverage at least once (ANC1)	Antenatal care coverage at least four times (ANC4)	Proportion of births attended by skilled health personnel	Antenatal HIV screening	Antenatal hepatitis B screening	Antenatal syphilis screening	Antenatal HIV treatment coverage	Antenatal syphilis treatment coverage	Stillbirth rate (per 1000 total births)	Hepatitis B birth dose coverage (timely)	Hepatitis B birth dose coverage (ever)	Hepatitis B third dose coverage
American Samoa											96.70	82.00
Cook Islands						100.00			5.18	>99.5	98.01	98.00
Federated States of Micronesia						94.50		70.00	11.7	70.00	53.50	84.00
Fiji		94.00	100.00			100.00		77.97	8.58	77.00	98.18	99.00
French Polynesia										87.61	91.25	97.83
Guam	88.99	73.26		68.88	98.08	93.53				100.00		
Kiribati	89.00	67.00	92.00			23.40		100.00	14.32	99.00		94.00
Marshall Islands		67.80	92.00			96.60		100.00	10.86	87.00	86.70	82.00
Nauru						61.80		61.80	13.12	>99.5		96.00
New Caledonia												
Niue			100.00						9.37	>99.5		>99.5
Northern Mariana Islands											97.50	62.10
Palau	90.00	81.00	100.00			100.00		100.00	7.71	>99.5	96.60	98.00
Papua New Guinea	76.00	55.00	53.00	19.30		25.60	81.40	79.60	16.09	21.00	95.54	40.00
Pitcairn Islands												
Samoa	93.00	73.00	83.00			89.40		100.00	8.75	78.00		68.00
Solomon Islands	89.00	69.00	86.00			4.90		100.00	10.06	66.00		94.00
Tokelau										76.84	94.74	100.00
Tonga	98.00	89.00	98.00			95.70		100.00	7.7	99.00		99.00
Tuvalu			100.00			100.00		100.00	11.87	98.00		92.00
Vanuatu	76.00	52.00	89.00			82.10		100.00	11.1	82.00		90.00
Wallis and Futuna											97.00	96.02

>95%
80%-94.9%
<80%

HBs Ag among ANC women



Syphilis among ANC women





Main take aways from the review

- Based on the available data, no PICT collects and reports sufficient data to report on all indicators
- Where estimates are available, many are below the required levels
- It is unlikely that any PICTs are ready to apply for validation of elimination



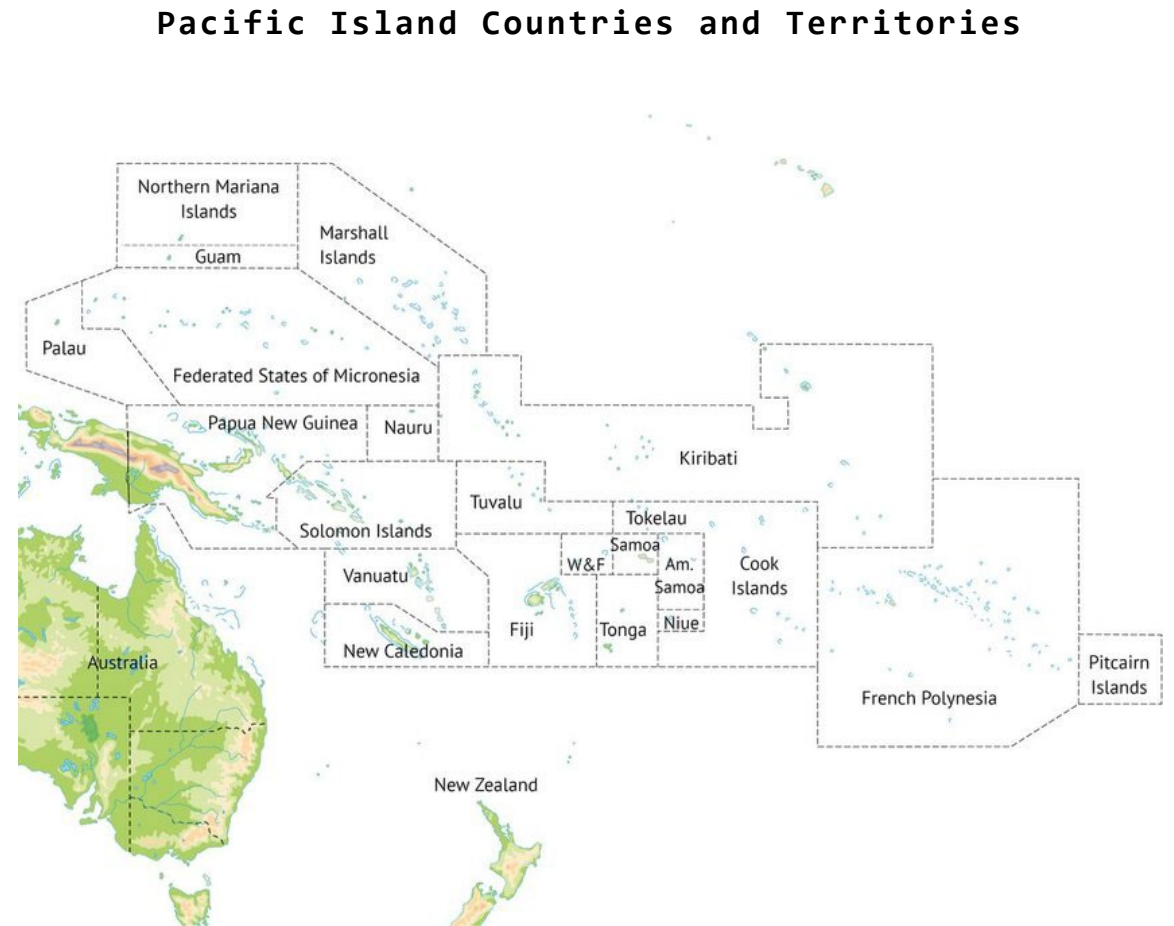
So what?

- Limited data means it is difficult to understand the extent of the problem
- Which means there is likely under investment or erroneous resource allocation
- Limited understanding of how the coverage of these indicators is changing means that programmatic changes will not be reflexive or timely
- Where data are available, targets are often not being met
- Additional investment needed to improve access to and availability of services to ensure that pregnant women and their children have the best care possible



Challenges

- Expansive geography
- Remote islands
- Relatively small populations
- Competing priorities
- Resourcing
- Supply chain





Strategies

Health care delivery

- Scale up of testing
- New tests? Multiplex POC?
- Alternative approaches for delivery of hep B birth dose (out of cold chain, prefilled auto-disable devices, microarray patches)
- Decentralisation of services (including laboratory and treatment)
- Enhanced integration with ANC
- Opportunities to share lessons learnt

Guidelines:

- Consideration of new guidelines on TDF prophylaxis
- Review RMNCAH guidelines to ensure inclusion of EMCT

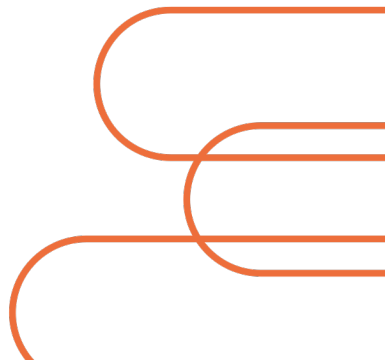
Data systems:

- Improved data collection and reporting systems
- Disaggregated data analysis at sub-national level



Limitations

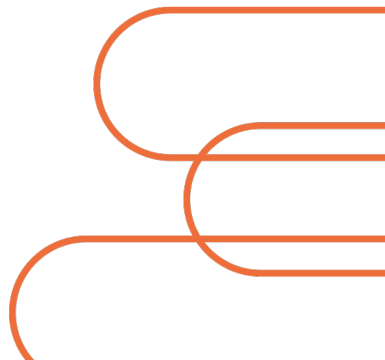
- Only used publicly available information
- Limitations around congenital syphilis diagnosis
- Analysis does not consider the timing of screening
- Slight differences in definitions of indicators
- Variability in year of report
- Robustness, quality, representativeness of data is variable
- Other important indicators (ex. hepatitis B treatment or antiviral prophylaxis during pregnancy and early neonatal death) not included
- Restriction to publications in English





Next steps?

- Use of rapid diagnostic tests at point-of-care in the Pacific – how are RDTs actually being used?
- “Protektem Pikinini Blong Yu” Trial (“Protecting your child” trial) – a trial looking at a TDF prophylaxis for all approach in pregnant women living with Hep B in Vanuatu
- Acceptability of midwife delivered TDF prophylaxis during pregnancy in Vanuatu
- Modelling the cost-effectiveness of universal peripartum antiviral prophylaxis



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