



menzies
**SCHOOL OF HEALTH
RESEARCH**

Evaluating adherence of HBV public health interventions to prevent vertical transmission of HBV and outcomes of children born to HBsAg positive people: a retrospective cohort study the NT.

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Connors C, Davies J on
behalf of the Hep B PAST
Partnership**

Acknowledgement of Country

We wish to begin today by acknowledging that we meet on the beautiful lands of the Whadjuk people of the Nyoongar nation, to pay our respect to Elders past and present & acknowledge that sovereignty was never ceded. We also wish to acknowledge that much of this work was undertaken on the lands of the Larrakia people. We thank the Aboriginal and Torres Strait Islander people living with hepatitis B who have generously participated in this research.

C4 genotype in Aboriginal and Torres Strait Islander communities in the Northern Territory

NT HAS THE
HIGHEST
PREVALENCE
OF CHRONIC
HEPATITIS B IN
AUSTRALIA

ABORIGINAL AND TORRES
STRAIT ISLANDER PEOPLE
DISPROPORTIONATELY
AFFECTED - 6% OVERALL
PREVALENCE

UNIQUE
SUBGENOTYPE
C4 IDENTIFIED

FASTER
PROGRESSION

TO CIRRHOSIS
AND LIVER
CANCER

Vertical transmission of hepatitis B is ongoing in the NT^P



HBIG and infant vaccination

Routine neonatal HBIG and vaccination has led to a dramatic reduction in the prevalence of HBV infection among infants born after 1990



BaMBI-NT study (Sullivan et al., 2022)

33 Aboriginal birth parents with complete serological profile
3 acquisitions of CHB
5 children immune by exposure



Serotype mismatch

Vaccine is developed against HBV genotype A, serotype adw2

The circulating subgenotype is C4, serotype ayw3



What is the degree of adherence to recommended interventions?

What are the serological outcomes?

Does the vaccine offer adequate protection?

PREGNANCY

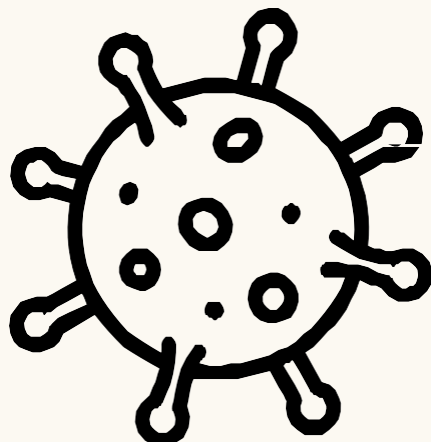
Screening during pregnancy



Antiviral therapy from 28 weeks if viral load $\geq 200,000$ IU/L

Preventing vertical transmission of hepatitis B

Current recommendations



NEONATE

Hepatitis B immunoglobulin
Birth dose of hepatitis B vaccine

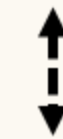
Within 48 hours
Within 7 days of birth

HBV vaccine – 2 months

HBV vaccine – 4 months

HBV vaccine – 6 months

HBV vaccine – 12 months



Minimum interval 6 weeks



Minimum interval 1 month



Minimum interval 2 months



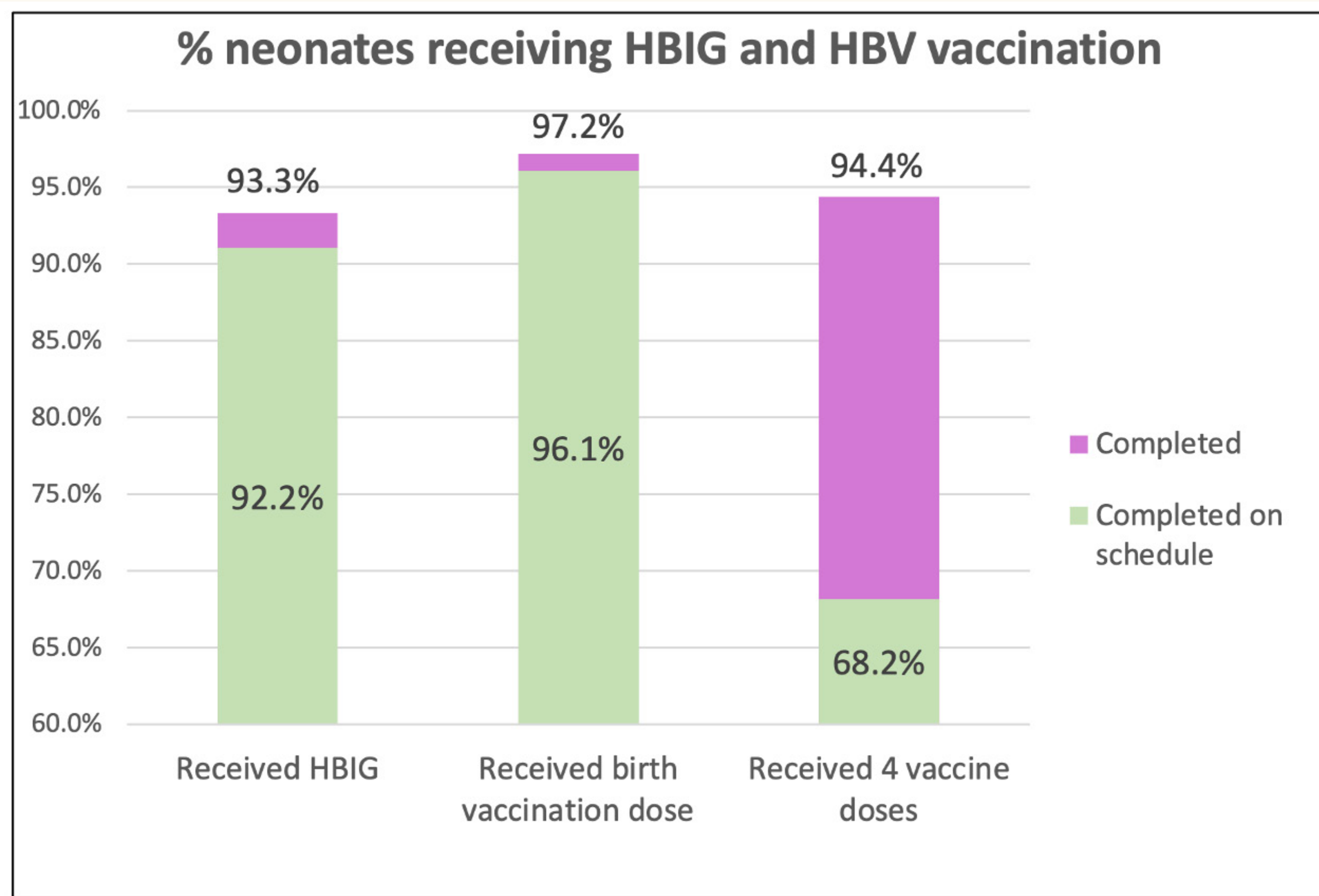
Min 4 months

If born at <32 weeks' gestation or <2000 g

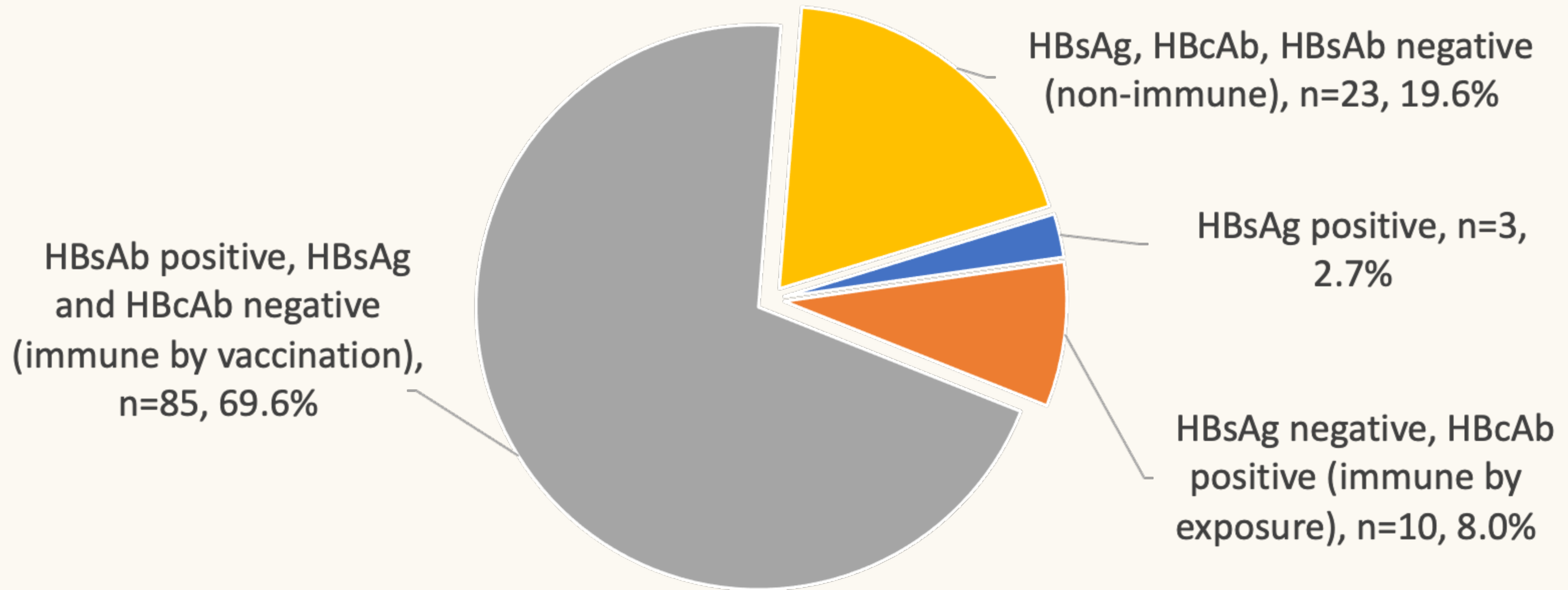
Demographic data of Aboriginal and Torres Strait Islander people whose infants received Hepatitis B immunoglobulin in the Northern Territory, 2010-2023, n=184

Demographic variable (n=184)	
Maternal serostatus (n, %)	
Hepatitis B sAg positive (overall)	178 (96.7)
Hepatitis B sAg positive, eAg positive	68 (37.0)
Hepatitis B sAg positive, eAg negative	86 (46.7)
Hepatitis B sAg positive, eAg status unknown	24 (13.0)
Hepatitis B sAg negative, cAb positive	6 (3.3)
Maternal viral load (IU/mL; median, range)	213 (0-2.06x10 ⁸)
Pregnant people who received antiviral therapy in pregnancy (n, %)	35 (19.6)
Proportion of very preterm births <32 weeks (n, %)	4 (9.5)
Proportion low birth weight <2000g (n, %)	5 (11.9)

Proportion of neonates receiving HBIG and hepatitis B vaccination in total, and on schedule, 2010-2023; n=179



Hepatitis B serological status of neonates, n=121



Drivers of transmission



**3 HBsAg positive
neonates**

Maternal HBeAg positivity
High maternal viral load
Lack of antiviral therapy



**10 HBcAb positive
neonates**

9 mothers HBeAg positive
5 with viral load $>200,000$ IU/ mL
-all five received antiviral therapy

**All neonates received HBIG
and 4 doses of HBV vaccine**

Key Findings

- Overall good adherence to recommendations for administration of HBIG and HBV vaccine
- Ongoing hepatitis B transmission in the NT
- Prevention interventions good at preventing chronic hepatitis B infection
- High percentage of HBcAb positivity (immune by exposure)

Is the vaccine adequately effective against the C4 genotype?