

Estimates of hepatitis B infection

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menzies school of health research

Hepatitis B vaccination

- 1985 – vaccination commenced in Australia
 - Children of HBV carrier mothers
- 1987 – Indigenous infants and “at risk” infants
- 1990 – all infants in the Northern Territory
- 2000 – all infants in Australia

HBV serology estimates

Pre vaccination

Author	Survey year	Location	Age years	Sample size	HBsAg positivity %	Seropositive* for HBV infection
Barrett ²⁹⁴	1961-1971	Northern Territory Queensland	Children	731	3.4%	n/a
Barrett ²⁹¹	1968-1974	Northern Territory	0-10 11-20	376 283	9.6% 13.1%	n/a
Burrell et al ²⁹⁵	1979-1982	South Australia	10-14 15-19	29 63	23% 23%	72%
Britton et al ²⁹⁶	1983	Sydney, NSW	Adult	67	9%	54%
Campbell et al ²⁹²	1985	Brewarrina, NSW	0-4 5-9 10-14 15-19	49 73 73 45	23% 19% 29% 22%	59% 55% 80% 87%
Mathews et al ²⁹⁷	1987	Northern Territory	>16	73	28%	64%
Gill et al ²⁹⁸	1989	Western Australia	4-9 10-14	91 162	4.5% 6.1%	22% 31%
Gardner et al ²⁹⁹	1990	Northern Territory	10-15 (rural) 10-15 (urban)		12% 1%	55 19
Gardner et al ²⁹³	1989	Northern Territory	9-17	439	8.2%	41.7%

Aims

- Estimate the seroprevalence of HBV infection in the NT according to age
- Baseline for monitoring the effectiveness of HBV prevention strategies

Methods

- Midwives data collection linked serology results
- Aboriginal Birth Cohort study serology results

NT midwives data collection system

- NT midwives data collection system
 - Register – maternal age, Indigenous status, maternal country of birth, location
 - 2002-2004
 - Unique identifier
- Antenatal HBsAg testing
 - NT Government pathology database
- Link databases
 - N=1040
 - Women aged 15-40 years

**Age group
(years)**

(n)

**Indigenous
%pos (95%CI)**

**Non-Indigenous
%pos (95%CI)**

15-19

201

4.8 (2-9.7)

0

20-24

271

6.4 (3.1-11)

0

25-29

274

6.7 (3-12.7)

0.7 (0-3.6)

30-34

201

1.5 (0-8)

0.8 (0-4.1)

35-39

93

8.8 (2-13.7)

1.7 (0-9.2)

Total

1040

5.5 (3.4-7.7)

0.8 (0.2-1.7)

Overall total = 3.1%

NT midwives data collection system

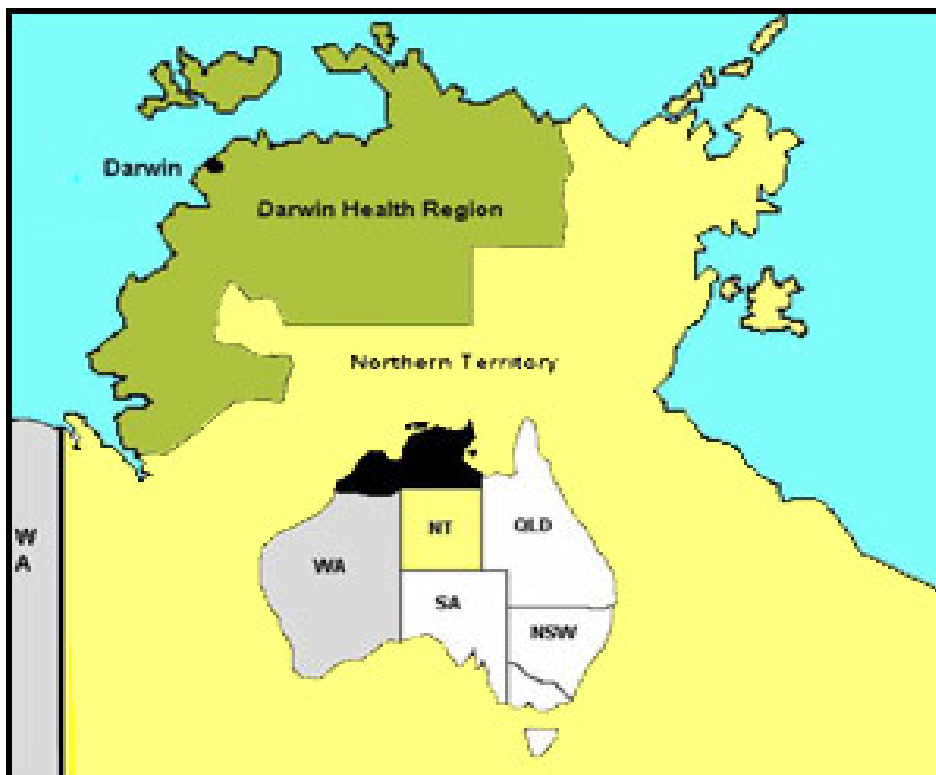
➤ Advantages

- More recent estimate 2004
- Risk factors known
 - Indigenous status
 - Maternal country of origin
- Similar prevalence to Romanes et al

➤ Disadvantages

- Only pregnant women
- Only HBsAg results
- Only public laboratory results
- Nil vaccine history known

Aboriginal Birth Cohort study



Commenced January
1987 to March 1990

N=686 babies born at
Royal Darwin Hospital

Detailed maternal and
child data collected

70 different locations

www.clancohort.com.au



- Longest Indigenous cohort study in the world
- Now aged 17-20 years old
- Wave 3 follow up – 2006 to 2007
 - “piggy back”
- Hepatitis B serology and vaccine history
 - Recent carrier estimate
 - Immune persistence
 - Response to a booster dose

Results - demographics

	Total (n=437)	%
Mean age (years)	18.2	
Past infection	91	21
Hepatitis B carrier	7	1.6
Non immune	224	66
gestational age >36 weeks	343	86
Received infant hepatitis B vaccines on time	127	29

Response to HBV booster vaccine

On time vaccination and non immune only (n=40)

	<10	10-100	>100
N	9	22	9
%	22.5	55	22.5

Compares to 2% non response in Sydney cohort

COLD CHAIN?

Aboriginal Birth Cohort study

➤ Advantages

- Recent estimate
- HBsAg, HbsAb, HBcAb results
- Both sexes
- Vaccination history known
- Community based – representative

Summary

- HBsAg estimates
 - Total = 0.8% to 3.1%
 - Indigenous = 1.5% to 5.5%
- Where to from here?
 - Routine HbsAg data include in Midwives data collection
 - Ongoing serosurveys
 - Notifications and vaccine history
 - Hepatocellular carcinoma impact
 - Immune longevity
 - Increasing age
 - Impact of substance use

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**Indigenous adolescents
who participated**