


National Liver Cancer Prevention Policy

Cancer Council Australia

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National Cancer Prevention Policy

Liver cancer


About this chapter

The Liver cancer chapter of the National Cancer Prevention Policy presents information about evidence-based strategies to prevent primary liver cancer (cancer that originates in the liver), with a focus on approaches to prevent and control chronic hepatitis B and C infections as the major causes of liver cancer in Australia and globally.

The chapter was developed in July 2012 in consultation with Monica Robotin, Medical Director, Cancer Council NSW; Chris Enright, Manager, Primary Health, Cancer Council Victoria; and Emily Adamson, Hepatitis B Program Coordinator, Cancer Council Victoria, and endorsed by Cancer Council's principal Public Health Committee. It was externally reviewed in February/March 2013 by Dr Benjamin Cook, Epidemiologist and physician, WHO Regional Reference Laboratory for Hepatitis B, Victorian Infectious Diseases Reference Laboratory, and Victorian Infectious Diseases Service, Royal Melbourne Hospital Department of Medicine, University of Melbourne; and Dr Mark Danta, Senior Lecturer in Medicine, Gastroenterologist and Hepatologist, Faculty of Medicine UNSW and St Vincent's Clinical School.

This chapter will be updated as significant new literature is published or changes in the policy environment occur.

Contact: Paul Grogan



National Cancer Prevention Policy

The National Cancer Prevention Policy makes specific recommendations for national action by governments and non-government organisations, including programs and strategies to reduce the incidence of specific preventable cancer types. (It does not provide information about cancer prevention for individuals).

The National Cancer Prevention Policy is separated into chapters on primary prevention, screening and immunisation. Each chapter is available separately. Some chapters are in PDF format, however several chapters are now available on the web platform allows Cancer Council Australia to continuously update policies as new evidence becomes available or if the policy environment changes. All chapters will be transitioning to the new platform in the near future.

If you want further information about how you can reduce your risk of common cancers, visit the [preventing cancer section](#) or call Cancer Council Helpline on 13 11 20.

Preventable risk factors

- Tobacco
- Overweight and obesity, physical inactivity and nutrition
- Ultraviolet radiation
- Alcohol
- Occupational cancers


Screening to detect cancer early

- Principles of screening
- Melanoma
- Bowel (colorectal) cancer
- Cervical cancer
- Breast cancer
- Prostate cancer

Immunisation

- Cervical cancer
- Liver cancer

This page was last updated on: Thursday, July 31, 2014



HCC in NSW: rising incidence and poor survival

Figure 4: Percentage change in mortality rates in males and females, NSW, 1999

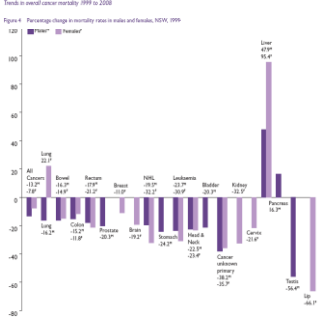
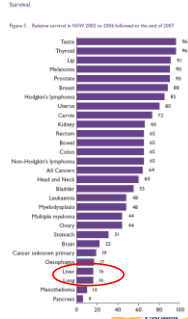


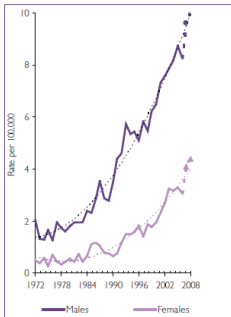
Figure 5: Relative survival in NSW 2000 to 2004 followed to the end of 2007



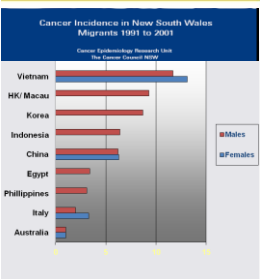
Source: Cancer in New South Wales - Incidence and Mortality Report 2008


HCC statistics in NSW, Australia

Age-standardised incidence, NSW





Cancer Incidence in New South Wales Migrants 1991 to 2001





Primary liver cancer incidence in NSW males by local government area, 1998-2002






Smoothed SIR

- 1 (blue) = 64.9 or less
- 2 (light blue) = 65 to 94.9
- 3 (yellow) = 95 to 104.9
- 4 (orange) = 105 to 116.9
- 5 (red) = 117 or more

● Significantly lower than NSW average
● Significantly higher than NSW average



HCC attributable fractions in world regions (%)

Attributable fractions (AF)	Europe & US	Japan	Africa & Asia	Australian estimates ¹
Hepatitis B virus	22	20	60	~ 33%
Hepatitis C virus	60	63	20	~ 33%
Alcohol	45	20	-	All other risk factors
Tobacco	12	40	22	cumulatively 33%
Oral contraceptives	-	-	8	
Aflatoxin	Limited exposure	Limited exposure	Important exposure	Limited exposure
Other risk factors	<5	-	<5	N/A

Bosch et al; Gastroenterology 2004; 127(S 5-16)

¹ Australian estimates provided by Prof Jacob George and the HCC STREP collaboration

Natural history of HBV infection

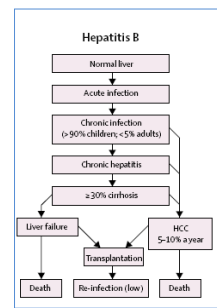


~25% of people chronic hepatitis B (CHB) develop liver cirrhosis and/or liver cancer (HCC) without adequate management

Optimal CHB care involves:

1. HBV testing in high risk populations
2. Lifelong monitoring for CHB
3. Timely institution of antiviral therapy
4. Screening for HCC in individuals at high risk

Given the uncertainties around the effectiveness of HCC screening in reducing mortality and poor outcomes associated with HCC treatment, the best outcomes to date are delivered by HCC prevention (i.e. steps 1-3 above)



Schiff 2006; Lancet 368; 896-7

Overview Impact Causes Prevention Screening Policy context Policy priorities

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 - 1.2 Liver cancer in Australia
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HCC global impact

- Worldwide HCC is 5th most common cancer in men and 7th in women ~ -0.75 million new diagnoses and 0.7m deaths
- 85% of HCC burden occurs in developing countries: South-East Asia, middle and western Africa, and Melanesia/ Micronesia/Polynesia
- 2008: HCC 3rd cause of cancer death worldwide (GLOBOCAN figures), ~ 50% due to CHB
- GBD: ~8.0 m lives lost to liver cancer in 2010
- In industrialised nations HCC affects mostly migrants from countries of high viral hepatitis prevalence

Country-specific estimates of burden of CHB infection in migrants in traditional migrant-receiving countries

Country	Number of migrants	Estimated infections	% with CHB
United States	35,500,500	1,607,000	4.5
Canada	4,271,500	285,000	6.7
Germany	4,784,000	284,000	5.9
Italy	3,684,500	201,500	5.5
United Kingdom	3,002,000	193,500	6.4
Australia	2,141,000	176,000	8.2
Spain	3,487,700	128,500	3.7
France	2,348,000	113,500	4.8
Netherlands	1,395,000	73,500	5.3

Adapted from Rossi et al, 2013



Mortality from cancer in 2010

Table 2: The 20 most common causes of death from cancer, Australia, 2010¹⁰

	Males			Females		
Sitetype (ICD-10 codes)	Deaths	ASR ¹⁰	Sitetype (ICD-10 codes)	Deaths	ASR ¹⁰	
Lung (C33-C34)	4,934	44.0	Lung (C33-C34)	3,155	24.2	
Prostate (C61)	3,235	30.0	Breast (C50)	2,840	21.8	
Bowel (C18-C20)	2,205	20.1	Bowel (C18-C20)	1,777	13.0	
Pancreas (C25)	1,233	11.1	Pancreas (C25)	1,261	9.9	
Unknown primary site (C80)	1,167	10.7	Unknown primary site (C80)	1,113	7.8	
Melanoma of skin (C43)	963	8.9	Ovary (C68)	912	7.0	
Liver (C22)	890	7.9	Other digestive organs (C26)	841	4.4	
Oesophagus (C15)	870	7.8	Non-Hodgkin lymphoma (C82-C85)	557	4.0	
Non-Hodgkin lymphoma (C82-C85)	781	7.1	Brain (C71)	512	4.1	
Bladder (C62)	736	6.9	Melanoma of skin (C43)	459	3.5	
Brain (C71)	735	6.4	Liver (C22)	449	3.4	
Stomach (C16)	719	6.6	Stomach (C16)	375	2.8	
Other digestive organs (C26)	713	6.5	Uterus (C54-C55)	354	2.7	

Liver cancer

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 - 1.2.2 Universal precautions in healthcare settings
 - 1.2.3 Harm reduction
 - 1.3 Prevention of non-viral liver diseases
 - 1.3.1 Alcoholic cirrhosis
 - 1.3.2 Obesity and metabolic factors
 - 1.3.3 Haemochromatosis
 - 1.3.4 Coffee intake

How well are we faring in primary prevention of HBV?

- Preventing neonatal transmission ●
- Routine neonatal HBV immunisation ●
- "Catch-up vaccination" through age 18 ●
- Vaccination of adults in high-risk groups ●
 - 1. People at occupational risk (HCW) ●
 - 2. Indigenous populations ●
 - 3. STD clinic clients ●
 - 4. Inmates in correctional settings ●
 - 5. MSM ●
 - 6. Migrants from high-risk countries ●
 - 7. IDUs ●



Source: <http://www.cdc.gov/ncidod/diseases/hepatitis/slideset/index.htm>

CHB prevalence in Indigenous populations prior to the introduction of HBV vaccination

Australia	Canada	New Zealand	US
0.47%-0.87% overall 2% urban Indigenous people 8% rural Indigenous people	6.9% in Inuit 0.3% in First Nations	5.4% in Maori policemen 16% in Maori children in Bay of Plenty Significant regional variations among Maori	>13% in Alaskan natives

Source: Shahid and Thompson, ANZJPH 2009 vol 33 109-118

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 - 1.4 Hepatocellular carcinoma surveillance
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Who to screen for CHB in Australia?

- All pregnant women;
- Household or other close (household-like) contacts of persons with hepatitis B;
- Sexual contacts of persons with hepatitis B;
- Migrants from hepatitis B endemic countries;
- Aboriginal and Torres Strait Islander people;
- Adult haemodialysis patients and patients with severely impaired renal function in whom dialysis is anticipated;
- Solid organ and haematopoietic stem cell transplant recipients;
- HIV-positive adults and other immunocompromised adults;
- Persons with chronic liver disease and/or hepatitis C;
- Persons who inject drugs;
- Recipients of certain blood products;
- Persons with developmental disabilities;
- Inmates of correctional facilities;
- Sex industry workers;
- Persons at occupational risk;
- Travellers to hepatitis B endemic areas.

Report for
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REVIEW ARTICLE

Community-based hepatitis B screening: what works?

Monica C. Roblin · Jacob George

Abstract Chronic hepatitis B (CHB) affects over 350 million people worldwide and can lead to life-threatening complications, including liver failure and hepatocellular cancer (HCC). Modern antiviral therapies could stem the rising tide of hepatitis B-related HCC, provided that individuals and populations at risk can be reliably identified through hepatitis B screening and appropriately linked to care. Opportunistic disease screening cannot deliver population-level outcomes, given the large number of undiagnosed people, but they may be achievable through well-organized and targeted community-based screening interventions.

Material and methods This review summarizes the experience with community-based CHB screening programs published in the English-language literature over the last 30 years.

Results They include experiences from Taiwan, the USA, The Netherlands, New Zealand, and Australia. Despite great variability in program setting and design, successful programs shared common features, including effective community engagement incorporating the target population's cultural values and the ability to provide low-cost or free access to care, including antiviral treatment.

Conclusion While many questions still remain about the best funding mechanisms to ensure program sustainability

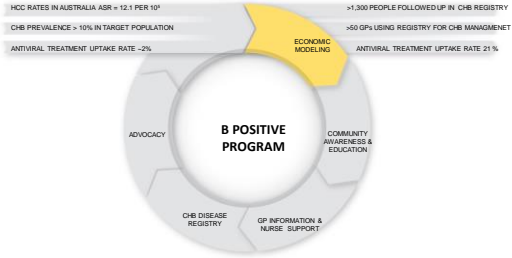
and what the most effective strategies are to ensure program reach, linkage to care, and access to treatment, the evidence suggests scope for cautious optimism. A number of successful, large-scale initiatives in the USA, Asia-Pacific, and Europe demonstrated the feasibility of community-based interventions in effectively screening large numbers of people with CHB. By providing an effective mechanism for community outreach, scaling up these interventions could deliver population-level outcomes in liver cancer prevention relevant for many countries with a large burden of disease.

Keywords Chronic hepatitis B · Hepatocellular cancer · Cancer screening and prevention · Community-based screening

Background

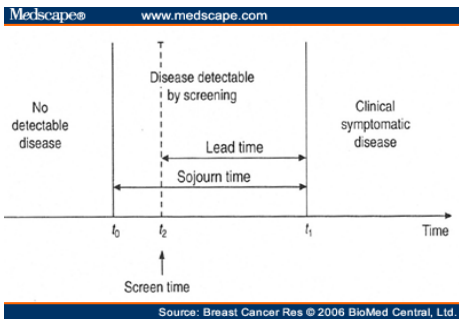
Chronic infection with hepatitis B virus represents a global public health challenge: given that approximately 350 million people are infected worldwide [1]. Approximately 95% of infected adults and older children can successfully clear the infection and become immune, but 90% of infected neonates and 25-50% of children infected in infancy become chronically infected [1]. Chronic hepatitis B (CHB) can remain asymptomatic for decades, but can

B Positive program elements and summary results



HCC surveillance –rationale

- Substantial morbidity and mortality
- Population at risk (cirrhotics, CHB) is well defined
- Screening is non-invasive
- Screening is low cost
- Diagnostic tests are available
 - α fetoprotein (APF) and US
- Curative treatments are available
 - surgical resection
 - liver transplantation



Policy priority/action	Expected benefit
Develop & implement action plans to implement National Hep B & C Strategies	Reduce HBV and HCV prevalence & future burden of HCC Improve outcomes in HBV- and HCV-infected populations
Conduct a national seroprevalence survey	Better informed hepatitis prevention and control policy and measures
Link existing data from surveillance programs, disease registries and treatment databases	Better informed population-based prevention programs to reduce liver cancer burden
Increase primary care participation in management and treatment of HBV and HCV	Increased diagnosis, better access to treatment and better support for people infected with HBV and HCV
Increase awareness of viral and non-viral risk factors for hepatocellular carcinoma among high-risk groups	Improved primary prevention of hepatocellular carcinoma, improved prevention of HBV and HCV
Increase awareness of hepatitis –liver cancer link among health professionals and policymakers	Improved disease management, screening and prevention of hepatocellular carcinoma
Increase community awareness of hepatitis and liver cancer, & improve their engagement	Increased uptake of prevention strategies, treatment and management of HBV and HCV
Conduct and support behavioural research	More effective interventions to increase motivation and access to screening and treatment & reduce barriers
Further assess potential of targeted hep B screening	Improved awareness and informed policy
Improve data collection & linkage	Better evaluation of the effectiveness of prevention strategies across the population and in sub-groups

Thank you



Estimates of people living with CHB in Australia. Adapted from MacLachlan et al, 2013³⁵

Population group	CHB prevalence (%)	# with CHB	Proportion of all CHB cases (%)
Born overseas	2.43	122,694	56.1
Asia-Pacific	3.55	83,300	38.11
Europe	1.03	22,032	10.1
Africa/ Middle East	2.69	15,565	7.12
Americas	0.80	1,796	0.82
Born in Australia	0.56	84,059	38.5
ATSI people	3.7	20,290	9.3
People injecting drugs	4	12,561	5.7
MSM	3	9,678	4.4
Other Australian-born	0.3	41,531	19
Others/ not stated	1.02	11,814	5.4
TOTAL	1.02	218,567	

ABBREVIATIONS: CHB Chronic hepatitis B; ATSI: Aboriginal and Torres islander people; MSM men who have sex with men

How to win the battle against liver cancer?

1. Primary prevention
 - Safe blood supply
 - Vaccination against HBV
 - Harm minimisation, ↓ preventable risk factors
2. Secondary prevention
 - Screening high risk groups to diagnose chronic hepatitis & institute timely antiviral treatment
 - Education, increased public awareness, practitioner up skilling to control/ eradicate infection
3. Tertiary prevention: diagnose and treat HCC early

Hepatitis B screening models US, 2008-9

1. Community Clinic (CCM)
 2. Community Outreach (COM)
 3. Partnership & Contract (PCM)
 4. Outreach & Partnership (OPM)
- 54.2% of those screened had no insurance/regular care provider
 - CCM program screened fewest participants with lowest cost: i.e. cost/screen (40 USD)
 - PCM screened most with highest cost (280 USD)
 - Recommend selecting populations amenable to clinical vs. community outreach

Rein et al., 2011 *Public Health Rep* 2011;126(4):560-7