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ALASKA NATIVE MEDICAL CENTER

Hepatitis B in Alaska and Beyond: Past, Present and Future

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Liver Disease and Hepatitis Program

ANTHC

ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

Question #1: Which is correct? Hepatitis B transmission among Alaska Native People

1. Has decreased due to vaccination but still is higher than the national average
2. Has decreased but is still equal to the national average
3. Has not decreased
4. Has been eliminated and only rare new cases have been seen
5. Has decreased and is lower than the national average

Question Number 2: Hepatocellular Carcinoma (HCC): Which Answer is Correct?

1. HCC rates for persons infected with chronic Hepatitis B Virus (HBV) are high only in adults with cirrhosis
2. HCC rates due to HBV are high in adults over 40 years of age and in children infected with genotype F
3. HCC rates in AN population has doubled this century and the leading cause is now hepatitis C
4. Current antiviral medications for HBV can cure patients infected with this virus but hepatitis C cannot be cured yet
5. Both answers 2 and 3 are correct

Objectives and Goals of This Talk

- Identify the sentinel events in the History of Hepatitis B Virus (HBV) in Alaska and in the World
- Explain how the hepatitis B virus (HBV) was discovered and it's association with liver cancer defined
- Describe how the hepatitis B vaccine was developed
- Describe the role the Alaska Tribal Health Organizations, the State of Alaska and the CDC play in the control of HBV in Alaska
- Identify ways to reduce the risk of HCC, diagnose HCC early and improve survival

I will be your guide through the past 50 years of viral hepatitis in Alaska and all the terrific work by the many vital players

- How did I get interested and involved in the Hepatitis field
- How we found that HBV infection rates were high in Alaska Native People and HBV associated hepatocellular carcinoma (HCC), later hepatitis A and C rates (story next time)
- Early intervention programs: A collaborative effort funded by Congress among AN Tribal Health Corporations, IHS/ANTHC, the State of Alaska Dept. of Health, CDC Arctic Investigations Program and Division of Viral Hepatitis
- Evolving programs to improve diagnosis and identify degree of liver disease in HBV and prevention
- Reaching the US and WHO goals for elimination of HBV in AN People
- Involvement and influence of HBV and HCC programs from Alaska have had nationally and global

Hepatitis B: Sentinal Events

- 1940s and 50s: Saul Krugman and others described two types of viral hepatitis: serum and infectious
- 1965: Baruch Blumberg discovers a protein in an Australian Aboriginal Person with Leukemia which he calls the “Australia Antigen”
- Shortly after, he, Dr. Harvey Alter and others found this protein was Hepatitis B Surface Antigen, the marker for active hepatitis B infection
  - 1976 Dr. Blumberg wins the Nobel Prize for Medicine
  - Dr. Alter won the Nobel Prize with two other scientists for Hepatitis C last year
- Late 1970s: Maurice Hillemin invents Hepatitis B serum vaccine
- 1981: HBV serum vaccine produced by Merck is FDA approved
  - HBV recombinant vaccine licensed in 1976

Global Prevalence of Chronic Hepatitis B

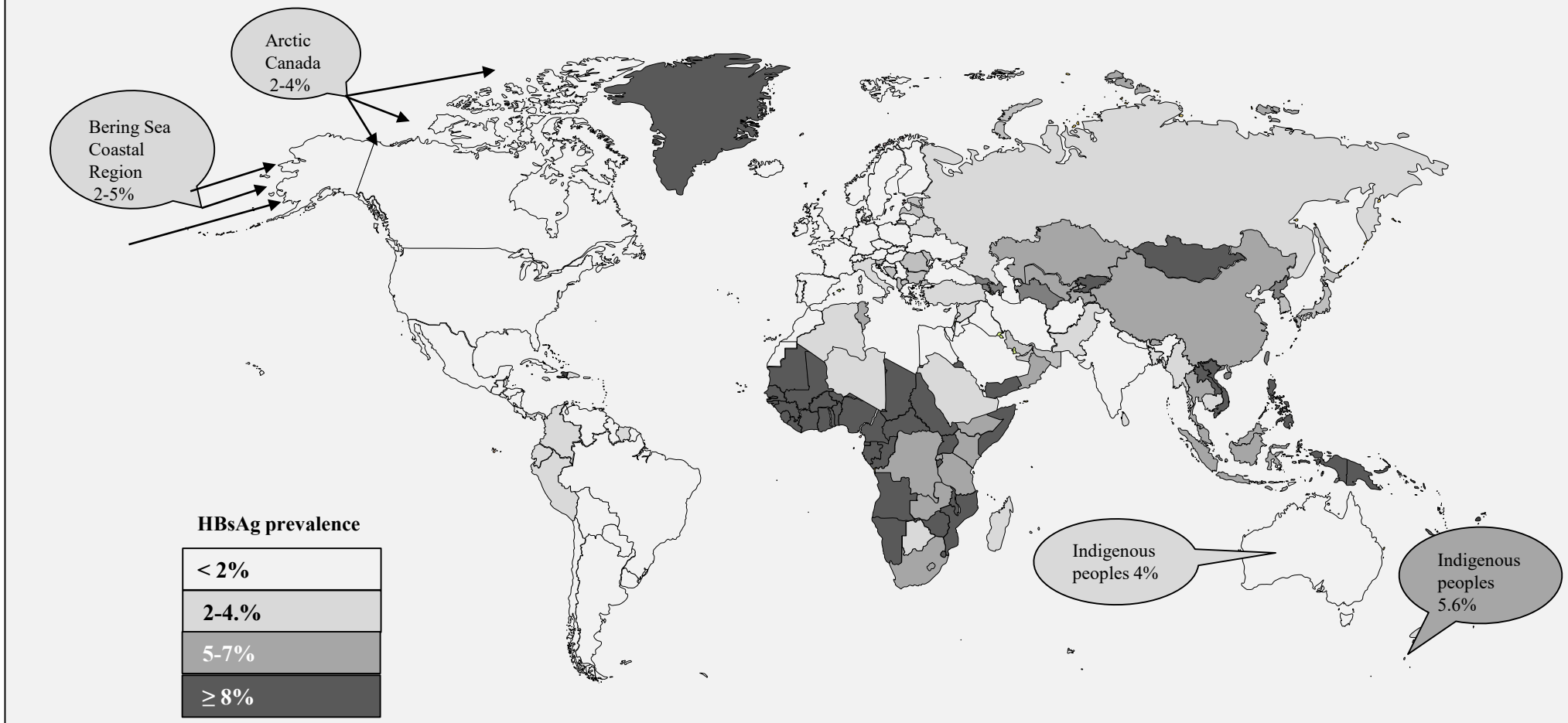
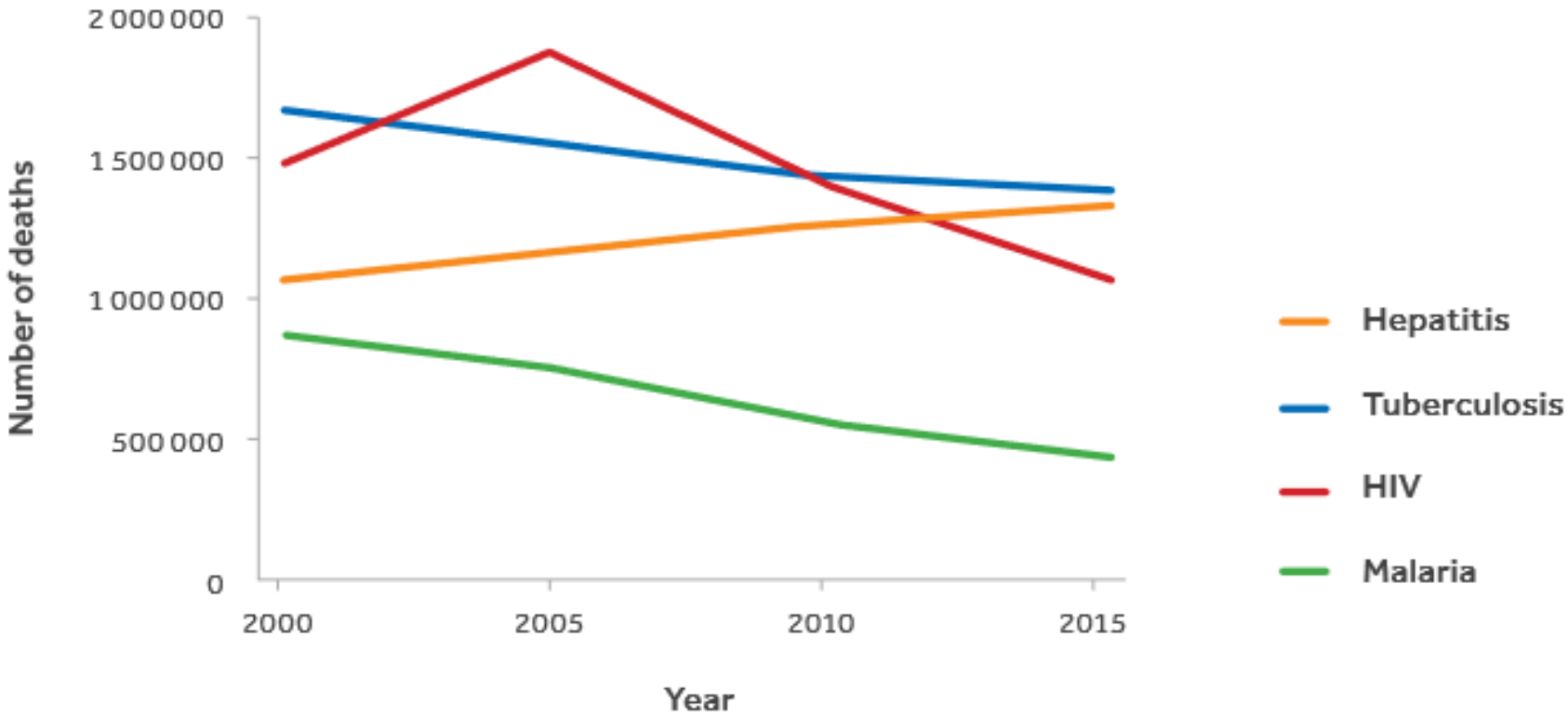


Fig. 2. Global annual mortality from hepatitis, HIV, tuberculosis and malaria, 2000–2015: unlike HIV, tuberculosis and malaria, the trend in mortality from viral hepatitis is increasing



Source: WHO global health estimates (Global Health Estimates 2015: deaths by cause, age, sex, by country and by region, 2000-2015. Geneva: World Health Organization; 2016.)

New data on Hepatitis B and C burden, incidence, and mortality by WHO region
(2021 WHO Global progress report)

Global Burden

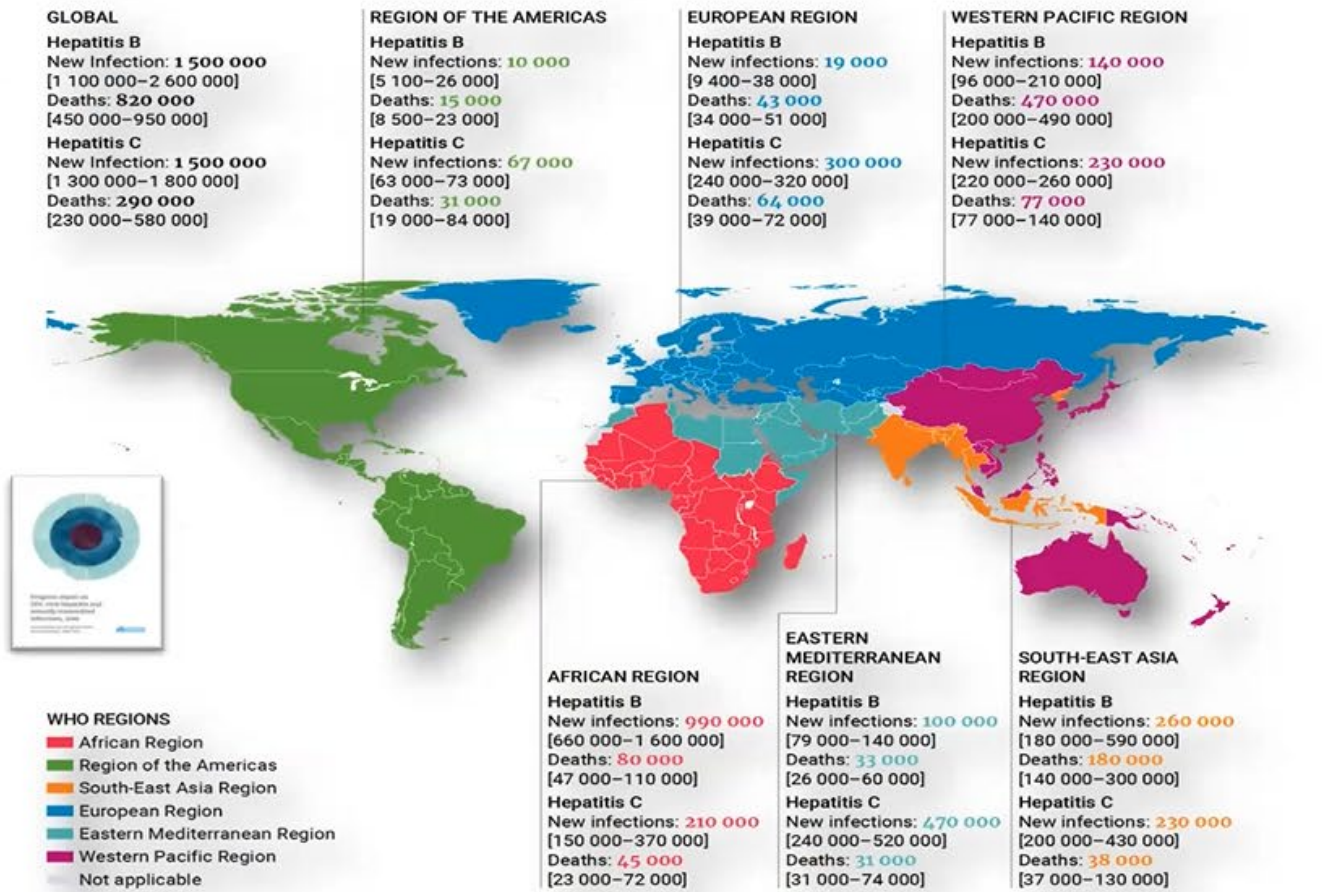
Hepatitis B - 296 m

Hepatitis C - 58 m

Viral Hepatitis

New data on incidence, prevalence

- 3.0 million new HCV & HBV infections
- 1.1 million HCV & HBV deaths with initial signs of HCV declines (290,000 deaths)
- Achieved <5 yr HepB prevalence SDG 2020 targets and GHSS goals



My Background

- I majored in Philosophy in undergraduate school
- In Med School I wanted to take residencies in Internal Medicine and Pediatrics and practice with a group of Docs on Whidbey Is. Washington where I had done my Family Med rotations
- I did my 1st year residency at LA County/USC in 1971 where my senior resident on my 1st month was Dr. Myron Tong who had just spent 2-years in Taiwan and published one of the first case-control articles on HBV and HCC
- He dragged me to the weekly liver rounds where I was smitten by 2 of the worlds most famous hepatologists, Drs. Redeker and Reynolds

More Background

- My training was interrupted by a personal letter from President Nixon welcoming me to the Dr. Draft during the Vietnam war
- I quickly signed up for the USPHS; I had contacted Alaska earlier and they pulled me out of the draft and sent me to Bethel
- My first month in Bethel I saw two patients with HCC, both young who died. It took 3 months for their blood test to come back from CDC as HBsAg+
- I screened our walk in blood donors and 5% were HBsAg+: Yikes!!!
- CDC AIP got interested and sent me a 2nd year med student whom I sent to 2 AK communities on the Kuskokwim where prevalence of HBsAg was 24% and 8%. *Epidemiology of hepatitis B in two Alaskan communities. American Journal of Epidemiology, 1977; 105:118-122.*


ALASKA
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The Alaska Community Health Aide Program

Alaska Native Tribal Health Consortium

web: www.akchap.org | www.anthc.org

ALASKA NATIVE TRIBAL HEALTH CONSORTIUM


Barrow
Duluth
Shemya
Sacramento
Kodiak
Tulsa
Ketchikan
Savannah

More Background

- CDC DVH sent a medical environmentalist who found HBsAg all over the many surfaces from homes where persons HBsAg+ lived and schools.
  - He took serum we had collected from a person who was HBsAg+, put in on a slide and let it sit on a windowsill for 7 days where it all dried up
  - Then he reconstituted it with normal saline and injected it into a lab chimpanzee who got acute hep B 30 days later. Proving HBV could survive on environmental surfaces for at least a week and very likely much longer
- During my 2-years at YKHC I saw almost 40 patients with HCC, all died within a few months. Primary hepatocellular carcinoma in Alaskan Natives, 1969-1979. International Journal of Cancer, 1981; 28:47-50.

Before I left to finish my residency with a vow to return, with the YKHC Board Each Community Council's approvals, I selected 12 communities in YK Delta for CDC to test for HBV

Results of the HBV Serosurvey

- In the 12 villages in the YKD:
  - HBsAg prevalence 6.4%, range: to 0% to 20.1%
  - Anti-HBs 18%, range from 4.6% to 50%

We established a prospective study in these 12 villages with blood draws every 6 months for 4-years to determine incidence and risk factors for chronicity and learn more about the infectivity of HBV.

Schreeder M et al. Am. J Epidemiol 1983: 543-548

- I returned to ANMC in 1978 and joined the Internal Med Dept. and with AIP and DVH, we analyzed the longitudinal HBV test results from the YKHC communities and presented the results to the YKHC Board

Table 1. The proportion of patients infected with HBV who also had clinical hepatitis.

	Male		Female		Combined	
Age (years)	No. tested	No. (%) with clinical hepatitis	No. tested	No. (%) with clinical hepatitis	No. tested	No. (%) with clinical hepatitis
0–4	6	1 (16.7)	15	1 (6.7)	21	2 (9.5)
5–9	27	2 (7.4)	34	4 (11.8)	61	6 (9.8)
10–19	28	4 (14.3)	30	2 (6.7)	58	6 (10.3)
20–29	7	1 (14.3)	15	2 (13.3)	22	3 (13.6)
≥30	7	2 (28.6)	20	7 (35.0)	27	9 (33.3)
Total	75	10 (13.3)	114	16 (14.0)	189	26 (13.8)

NOTE. The Wilcoxon rank sum test was used to compare the age of patients with and without clinical disease. Values are as follows: male, $z = 1.42$ and $P = .08$; female, $z = 2.64$ and $P < .01$; combined, $z = 2.96$ and $P < .01$ (P values are one-sided).

McMahon BJ et al. J Infectious Dis 1985;151:599-603

Table 2. The proportion of patients infected with HBV who became chronic carriers of HBsAg.

	Male		Female		Combined	
Age (years)	No.	No. (%) carriers	No.	No. (%) carriers	No.	No. (%) carriers
0–4	6	2 (33.3)	15	4 (26.7)	21	6 (28.6)
5–9	27	5 (18.5)	34	5 (14.7)	61	10 (16.4)
10–19	28	1 (3.6)	30	3 (10.0)	58	4 (6.9)
20–29	7	1 (14.3)	15	2 (13.3)	22	3 (13.6)
⩾30	6*	0 (0)	20	2 (10.0)	26	2 (7.7)
Total	74	9 (12.2)	114	16 (14.0)	188	25 (13.3)

NOTE. The Wilcoxon rank sum test was used to compare the ages of chronic carriers of HBsAg with other patients only infected with HBV. Values are as follows: male, $z = 2.11$ and $P = .02$; female, $z = 1.06$ and $P = .14$; combined, $z = 2.12$ and $P = .02$ (P values are one-sided).

* One 46-year-old man died less than six months after his infection was detected.

Phase 4 Hepatitis B Plasma Vaccine Study

- In 1981 a plasma-derived HBV vaccine developed and the Yukon-Kuskokwim Native Health Board approved a vaccine trial prior to after one member from a Yukon community told the story of a young girl, valedictorian of her class with a full ride to UAA who died of HBV associated HCC
- 6 months prior to licensure we did serosurveys in 16 villages: identified sero-susceptable persons: 14 YKHC and 2 NSHC who signed consent to participate
- The day after licensure we again drew blood for HBV markers and administered the 1st of 3 doses to susceptible persons
- 97% responded: significant drop in rate of infection rate between time of serosurvey and after 1st 2-doses of vaccine. *The control of hepatitis B virus infection with vaccine in Yupik Eskimo People: demonstration of safety, immunogenicity and efficacy under field conditions. American Journal of Epidemiology, 1985; 121:914-923.*

Long-term Effectiveness of HBV vaccine

- We have followed these persons who received HBV vaccine in 1981: 90 percent have evidence of humoral protection at 30 and 35 years
  - *Bruce M et al. Hepatology published on line 2022, journal article pending*
- Studies performed by collaboration between AIP, and UAA using flow cytometry have shown that in all persons vaccinated, even non responders or persons who did not have evidence of humoral (anti-hepatitis B antibody)immunity, had T cell and cytokine recognition of HBV surface antigen showing cellular immunity was present
  - *Simons BC et al, A longitudinal hepatitis B vaccine cohort demonstrates long-lasting hepatitis B virus (HBV) cellular immunity despite loss of antibody against HBV surface antigen. Journal Infectious Dis.. 2016;214:273-280.*
- Primarily because of data from Alaska, HBV booster doses are not recommended globally saving millions of dollars

The Early HBV Story Continues: Politics Enters the HBV Arena

- Back to 1973, I Presented results of the HBV vaccine study to YKHC Board: Their response: “Good job but is that all you’re going to do; what next?”
  - My response: “We don’t have any money”
  - We then drew up a ½ million dollar proposal and sent it to Dr. Everett Rhodes IHS Director and an Oklahoma American Indian and former Director UO ID Dept.
- Two weeks later headlines of Anchorage Daily News: “New Hepatitis B vaccine licensed, Alaska Native children dying of HBV liver cancer and nobody is doing a thing about it”
- Four hours later, Senator Ted Stevens is in the IHS Directors office pounding on his desk; Dr. Everett Rhodes, an ID specialist hands him our proposal
- 4 days later, we get half million to start newborn and employee vaccination

HBV Advisory Group Meeting at ANMC

- In 1983, Dr. Everett Rhodes invites a group of National Experts here to review HBV in Alaska and make recommendations: Included are Saul Krugman, Maurice Hilleman, Alan Redeker, Myron Tong and others.
- This group makes a strong recommendation that the entire Alaska Native Population and non-Native persons living in areas of Alaska where hepatitis B is found to be endemic be screened for HBV seromarkers and offered HBV vaccine if susceptable
  - The recommendation goes to the Alaska Native Tribal Health Boards, all endorse, then to the Alaska Congressional Delegation.

Beaten up in a Senate Hearing

- Several months later I am summoned to a Senate Indian Affairs Committee hearing chaired by Senator Frank Murkowski with the Director IHS.
- For 2- hours we are very vocally quizzed as to: “Why aren’t you doing more”
  - “We don’t have any money” (we repeated over and over again)
- How much do you need to screen vaccinate the entire AN living in the whole state and all persons of any race living in rural Alaska?
  - $9 million would be nice
  - One month later, Senate, house passes bill for $9 million

Alaska Native Hepatitis B Program

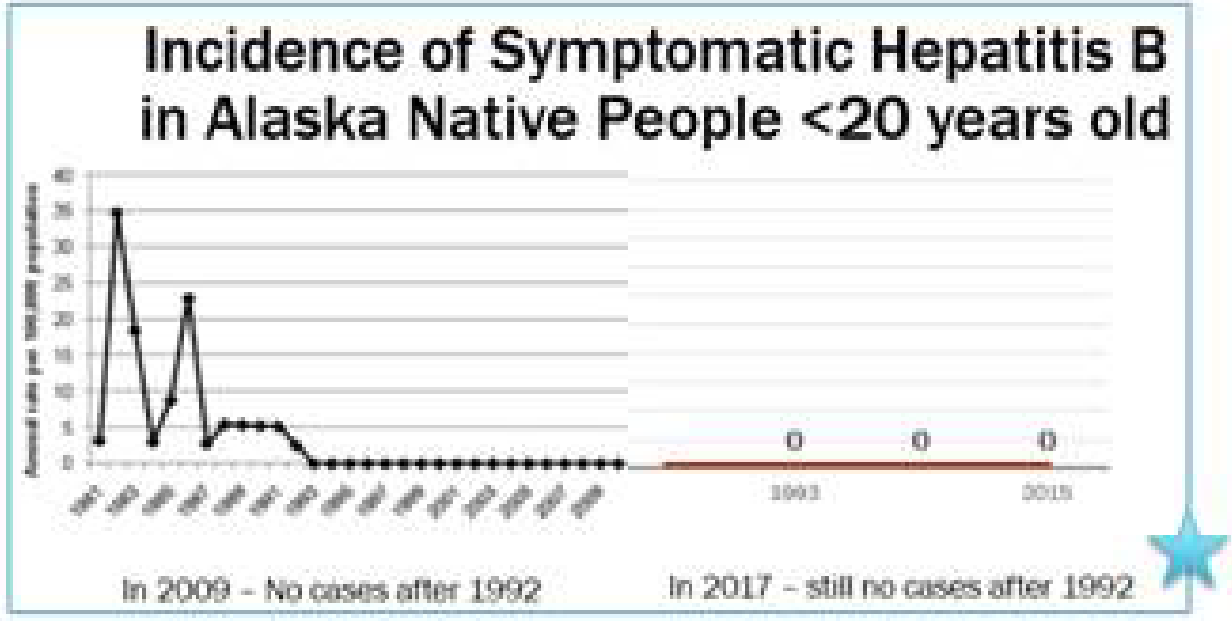
- Screening and catch-up vaccination of children and adults: 1983-1988
  - The work of screening and vaccination is contracted to all the Alaska Native Tribal Health Organizations and the State of Alaska and these groups did a fantastic job and deserve credit for the elimination of HBV transmission
    - 53,000 AN and non-Native persons screened; ¾ of AN population, 90% all persons living in endemic areas of western Alaska. Overall prevalence of HBsAg 3% in AN People: range 0 to 40%. *Seroprevalence of Hepatitis B Viral markers in 52,000 Alaska Natives. American Journal of Epidemiology, 1993;138:544-549.*
    - 40,000 persons susceptible received hepatitis B vaccine series
    - 1,550 persons identified with chronic HBV infection, linked to care and follow-up
    - A dramatic drop in HBV infection rate after this vaccination campaign occurred. McMahon BJ, Rhoades ER, et a;. A comprehensive programme to reduce the incidence of hepatitis B virus infection and its sequelae in Alaskan Natives. Lancet, 1987; 330: 1134-1136.

Steps to Eliminate HBV Perinatal Transmission in Alaska Native Children: 1983-Present

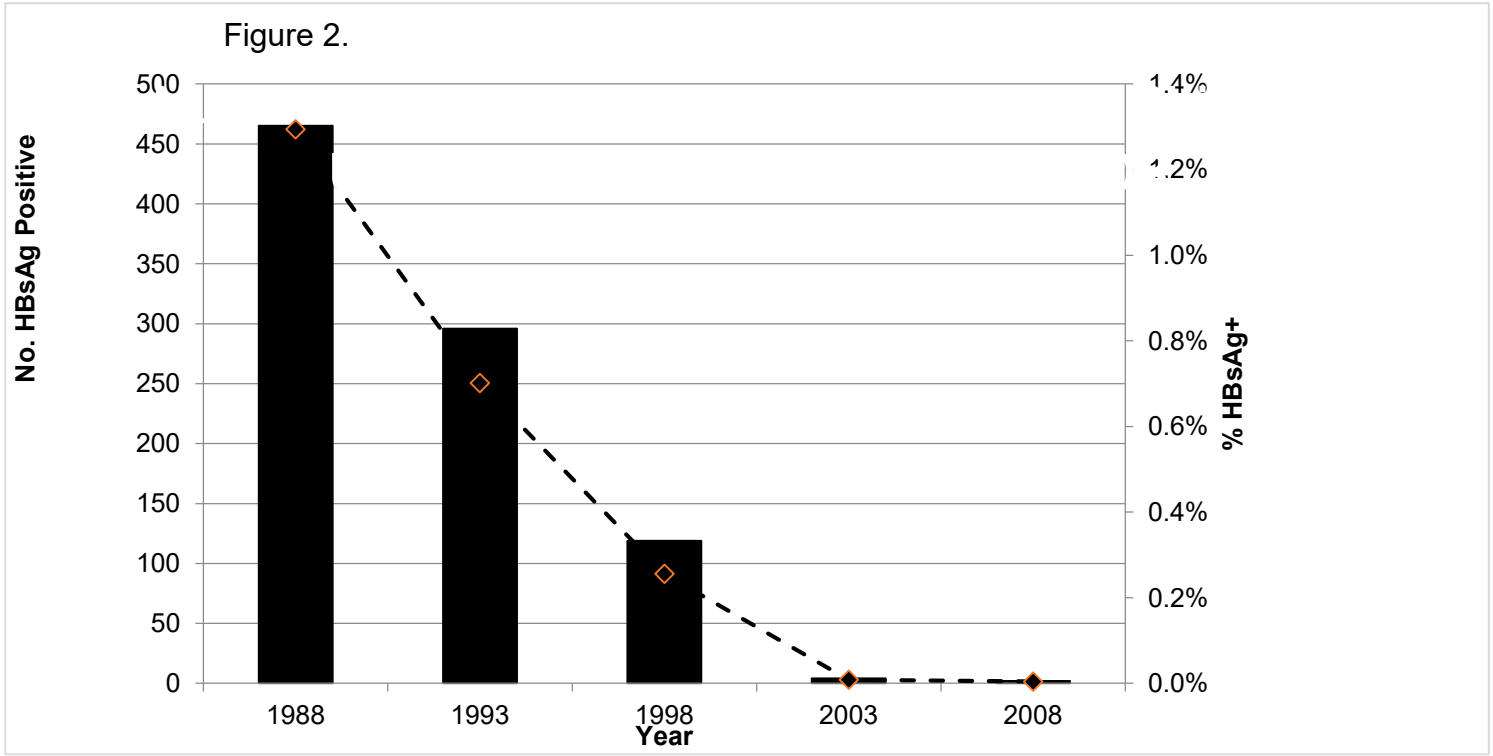
- 1983-1988:
  - Universal screening of all pregnant Alaska Native (AN) women for HBsAg
  - Introduction of HBV vaccine universal birth dose
  - Addition of HBIG at birth for newborns of HBsAg+ mothers
- 1995-2000:
  - Antiviral therapy added for HBsAg+/HBeAg+ mothers starting in the 3rd trimester to 1 month post partum (initially lamivudine, later Tenofovir)
    - Antiviral therapy if HBV DNA >20,000 IU/ml starting 2000

Impact of Hepatitis B Vaccine

- In 1970s and 80s Alaska Native people had the highest U.S. rate of hepatitis B disease and hepatocellular cancer.
- **Routine Hepatitis B vaccine was introduced in 1984.**



McMahon et al. Hepatology 2011;54:801-807



As of 2013, there are no Alaska Native children known to be HBsAg-positive through 2020

Other Prominent Persons who Visited Alaska to Review Hepatitis B and Made Recommendations: 1984-1990)

- Dr. Baruch Blumberg, Nobel Prize Winner came to see how our program was able to stop HBV transmission
- Dr. Hans Popper, the “Father of liver pathology” who reviewed all of our liver pathology slides and, to his surprise, discovered that children and young adults with HBV could develop liver cancer without cirrhosis *Popper H, et al. Evolution of Hepatocellular carcinoma associated with chronic hepatitis B virus infection in Alaskan Eskimos. Archives of Pathology and Laboratory Medicine, 1988; 112:498-504.*
- Dr. Harvey Alter 2021 Nobel Prize winner came for a meeting
- Dr. Michael Kew: Hepatologist from South Africa and Nelson Mandela’s personal Physician came for a meeting

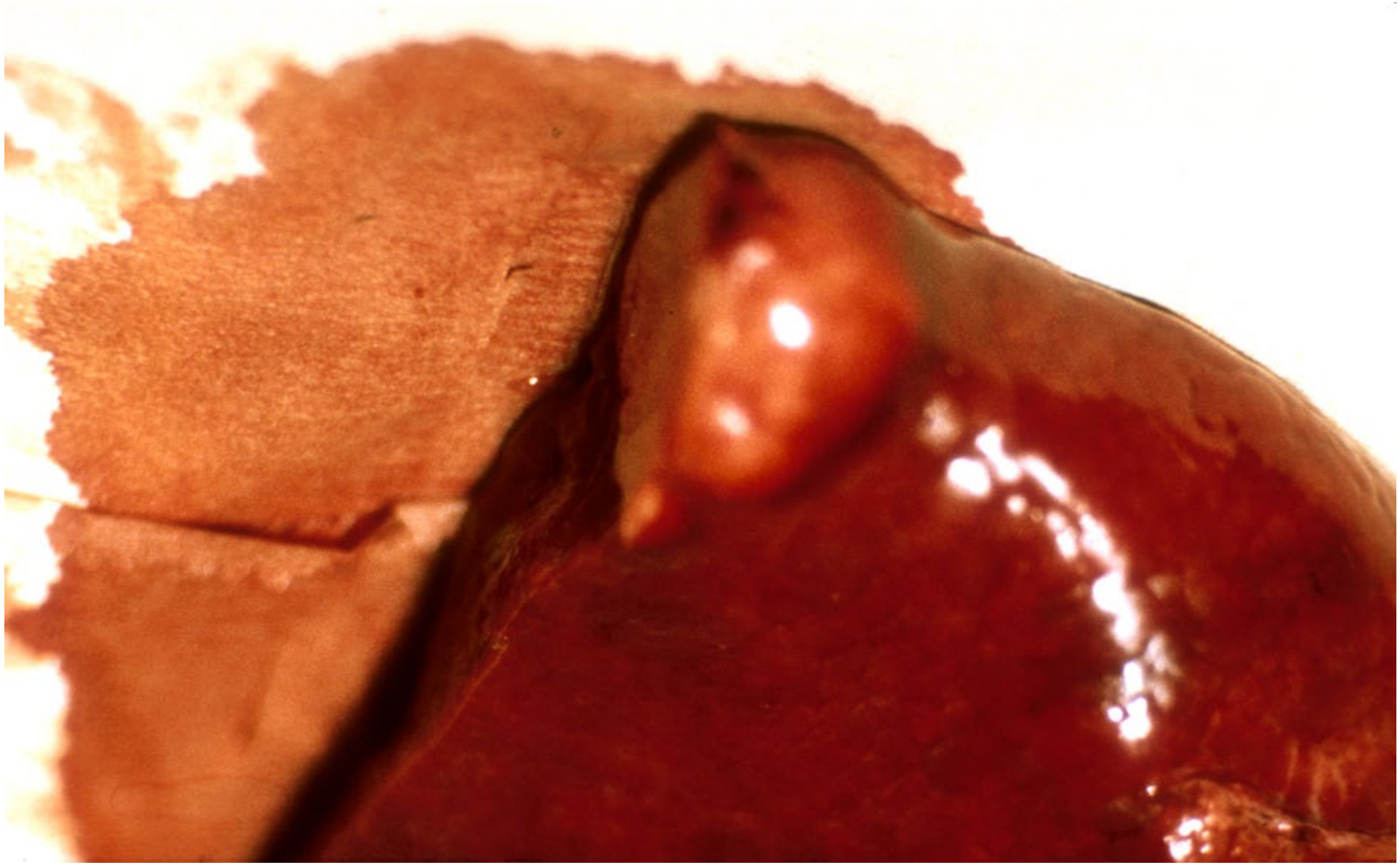
Second IHS Directors Advisory Review of HBV Alaska Program: 1988

- Dr. Rhodes chaired a 2nd meeting of the same advisors after completion of the mass screening and vaccination program
- This panel recommended that ongoing program be established to care for Alaska Native persons with chronic HBV and continue routine vaccination
- This program should include regular care for those with chronic HBV
  - Establishing a laboratory at ANMC to perform HBV DNA testing, 1st hospital in state (funded by a $1,000,000 grant from the State of Alaska Permanent Fund Foundation)
  - Monitoring liver function tests every 6 months, AFP, HBV DNA levels, Hepatitis B ”e” antigen and antibody to hepatitis B “e” antigen
    - ANMC lab later developed 1st HBV genotype testing in State
  - Regular screening of at risk persons for HCC with AFP and liver US
- To protect ongoing financial support for these above activities: Senator Ted Stevens later imbedded this funding into the yearly Congressional budget

First Steps to Detect HCC Early when Cure is Possible: Back to the Early 80's

- In 1983 after reading an article from China on AFP as a marker for HCC by Dr. Tang we decided to screen a couple dozen AN persons with family Hx of HCC with AFP every 6 months.
  - *Heyward WL, Lancet, 1983; ii:1161-1162.*
- After 18 months an 17 y.o AN male from a Yukon Community whose father and brother died of HBV HCC had an elevated AFP.
- ANMC just obtained it's first CT scanner so we brought the patient in for a CT
- We thought we saw a small lesion but were unsure. When told that to this person and asked him for his input; he said "Open me up, I don't want to die like my dad and my brother".

A Case of HCC in a 17 Year Old Boy Infected with HBV Genotype F1b



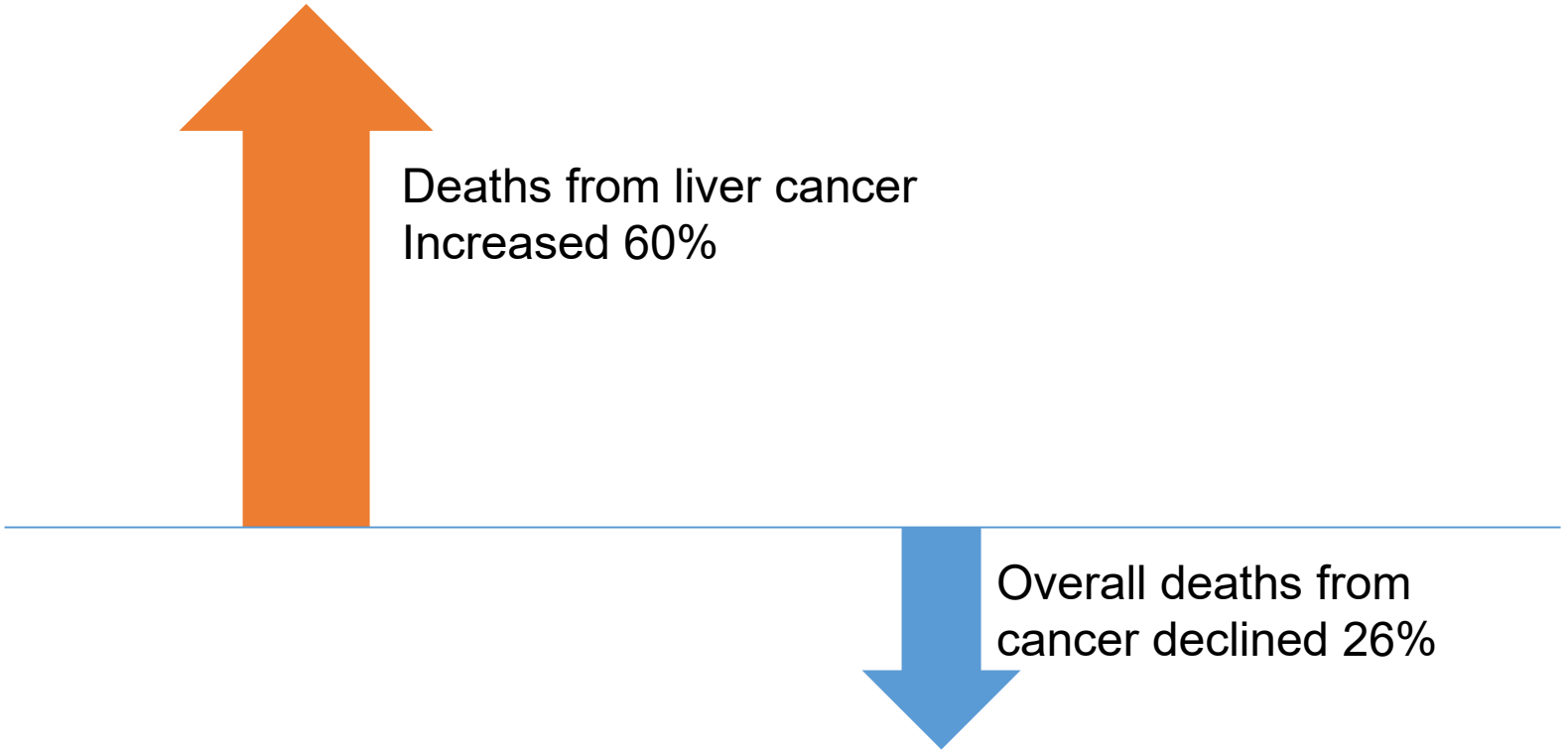
A Trip to Shanghai in 1983 to Attend the First Chinese Medical Conference on HCC

- After our first success, William Heyward from AIP and I went to Shanghai in January. Mao was dead but the Gang of Four was still around and the Government wanted to turn the people against them. We heard many HCWs sad story of their time in prisons and farms during the Cultural Revolution
- There were few cars except taxi's in Shanghai and the hotel had no heat in the rooms. It was 30 stories high, by far the highest building there. Every AM I went running with my friend Mike Kew from Johannesburg dodging bicycles and we never got lost because we could always see our hotel
- We dined with the mayor of Shanghai who later became premier during Tienanmen Square uprising and put it down
- We dined on delicious Chinese delicacies in the same Hall that President Nixon dined in a few months earlier (only heated place in Shanghai)
- After we returned, we enrolled all 1,500 persons with HBV into every 6 month AFP surveillance bring those whose result turned positive in for US and/or CT
- We started finding early HCC lesions that could be removed. JAMA 1985; 254:3052-3054.

Surveillance for early detection of hepatocellular Carcinoma (HCC): Current Program

- Letters are sent to the following persons every 6 months to go to their provider have a liver Ultrasound and AFP drawn and a list of patients needing screening to each Tribal Facility and individual provider
  - Hepatitis B: men 40, women 50 years and over, persons with a family history HCC, persons with cirrhosis, persons HBV genotype F infection
  - Persons with F3, or F4 fibrosis who have hepatitis C before and after cure
  - Persons with cirrhosis due to Alcohol liver disease, NAFLD, autoimmune liver diseases and unknown etiology
    - This approach has resulted in just under 50% of above persons have a imaging study done at least once yearly

Deaths from Cancer, 1990-2015

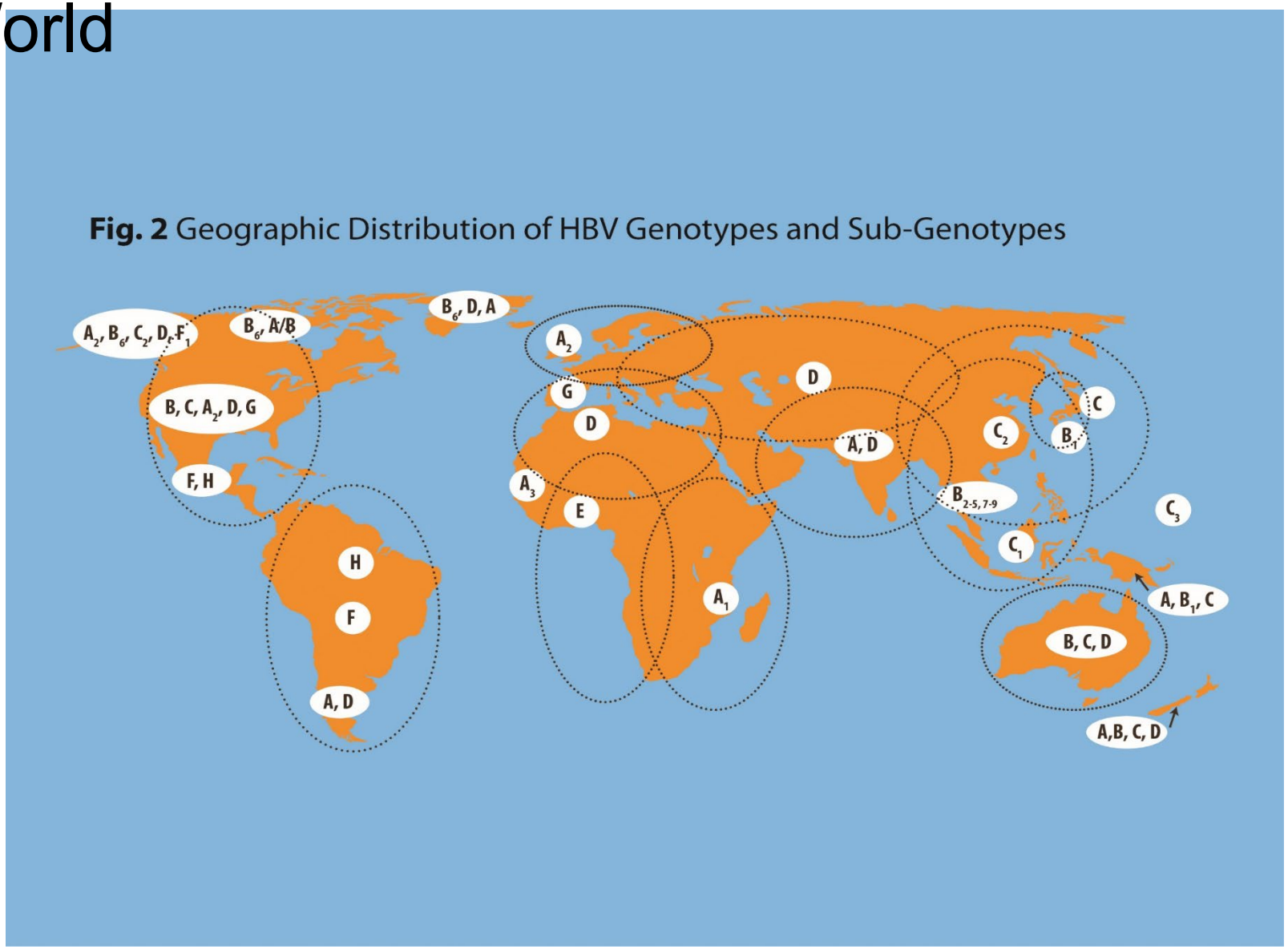


Source: CDC.gov

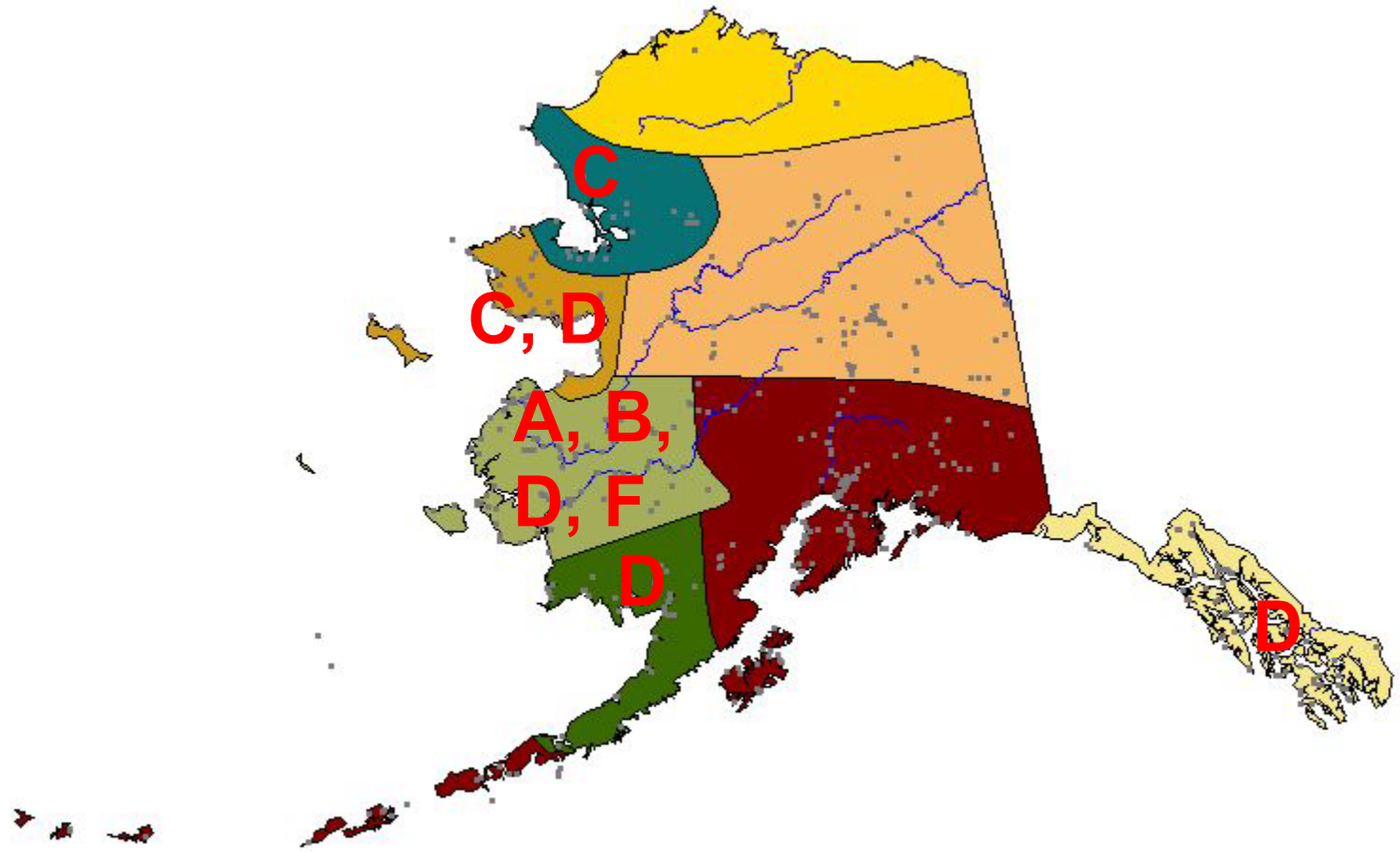
Genotypes in Alaska Native People with HBV

- Five of the eight HBV Genotypes are found in this population
  - Genotype A2: Similar to A2 found in Europe
  - Genotype B6: similar to Genotype B1 found in Japan
  - Genotype C2: Similar to C2 found in China but likely from Kamchatka
  - Genotype D2,3: Europe and Siberia
  - Genotype F1b: South America

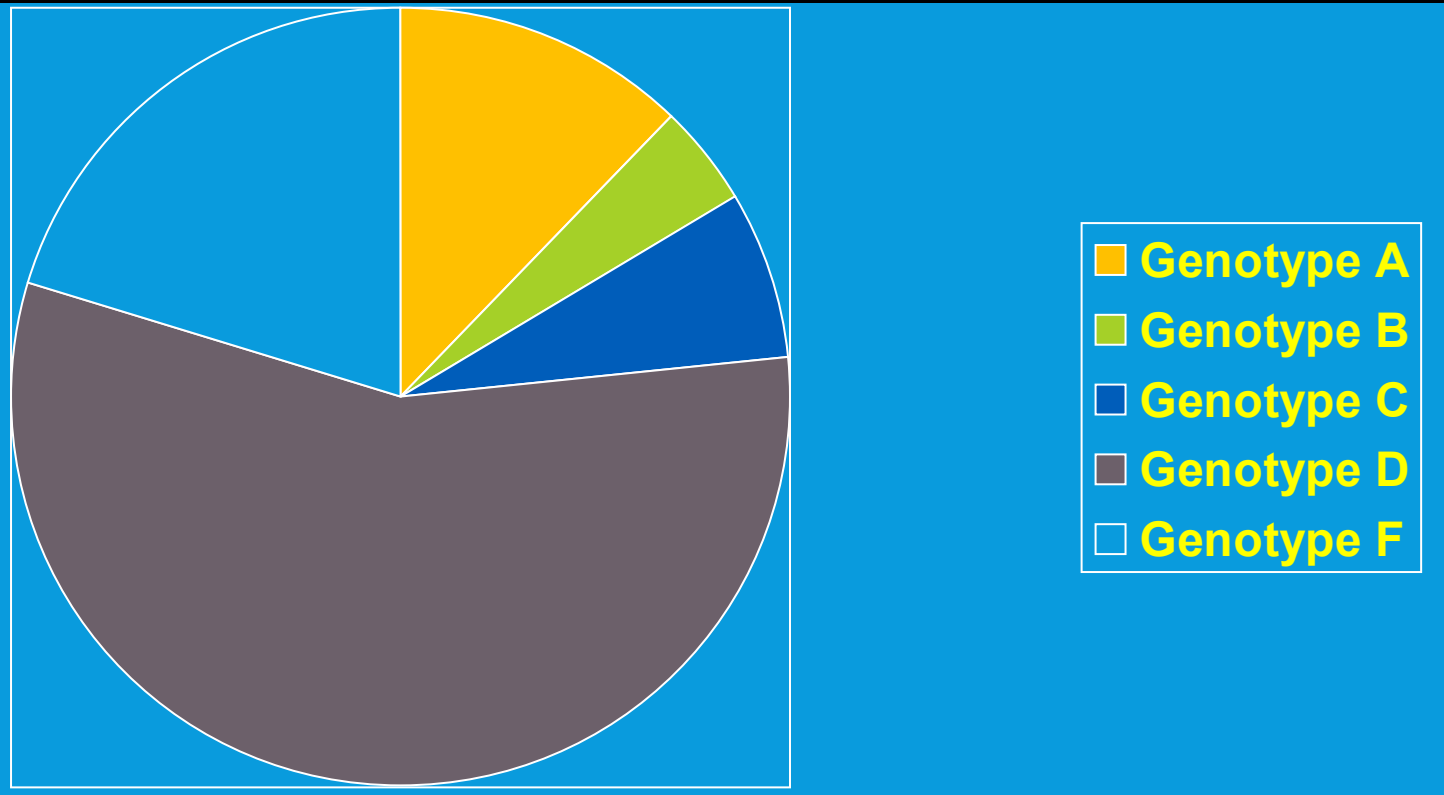
HBV Genotype Distribution Throughout The World



Geographic Distribution of HBV Genotypes in Alaska Native Persons



HBV GENOTYPES IN ALASKA NATIVES



Influence of HBV Genotype on Natural History of Chronic HBV Infection

- Three areas of investigation in Alaska
  - Clearance of HBeAg
  - Clearance of HBsAg
  - Incidence of HCC

Median Age of HBeAg Seroconversion by Genotype: Median 21 Years Follow-up*

Genotype	No. HBeAg+	Age 50% lost HBeAg	Age 75% lost HBeAg
A_2	34	19.8	32.1
B_6	6	19.5	27.5
C_2	36	47.8	58.1
D	305	18.0	27.3
F_1	126	16.1	24.5

Livingston et al. Gastroenterology 2007;133:1452-57

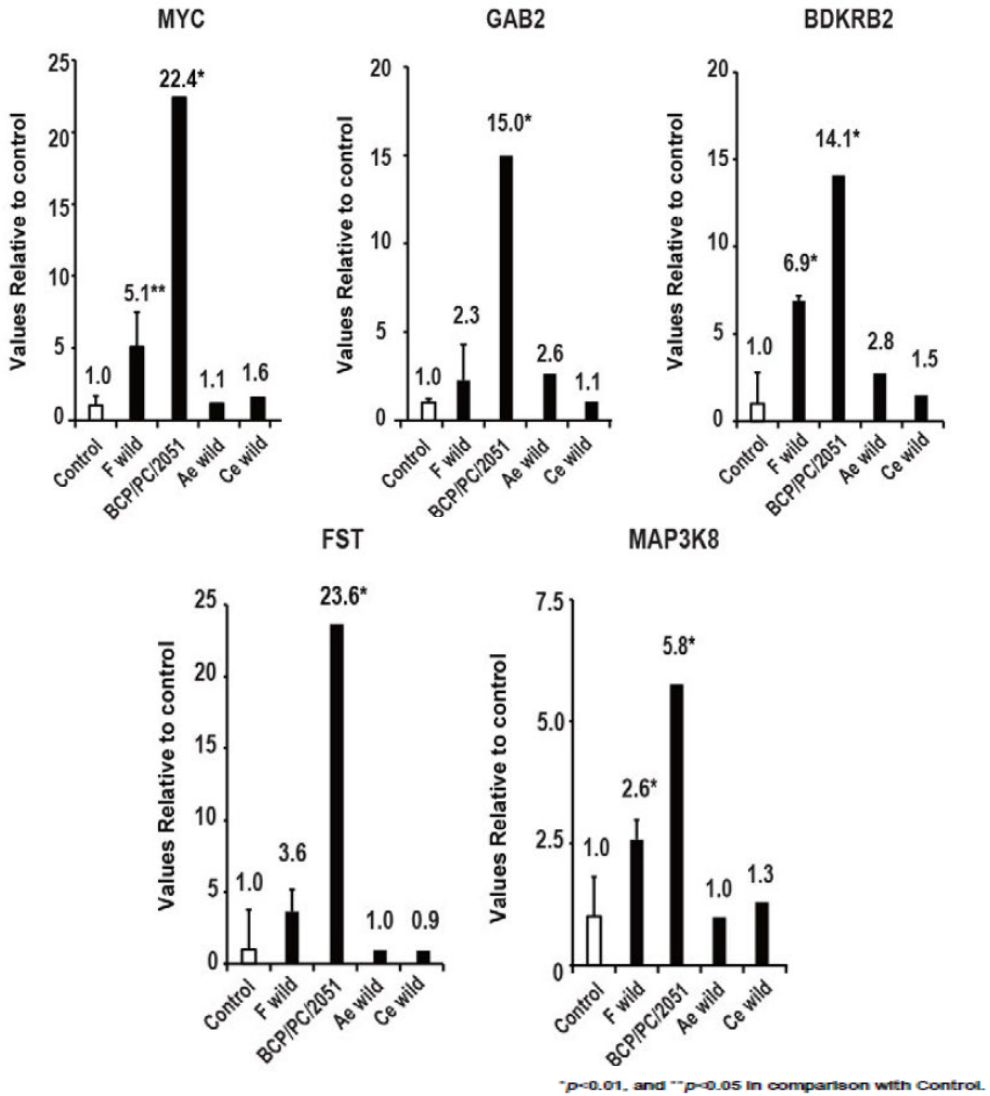
HBV genotype and HCC in Alaska

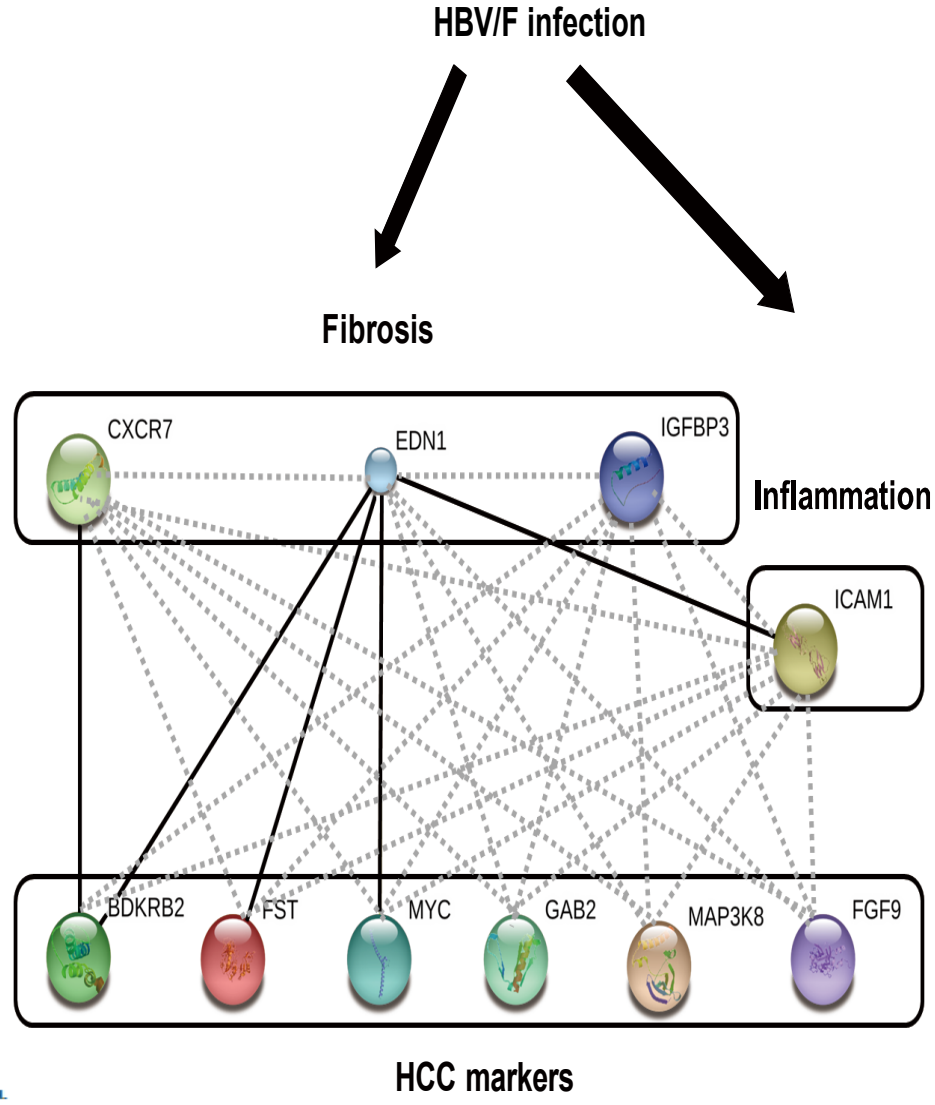
- Incidence of HCC is strongly associated with HBV Genotype
- Family history of HCC
- After adjustment for geographical distribution, gender, age at diagnosis, presence of cirrhosis and family history of HCC, genotype F significantly associated with HCC ($p<0.001$) at all ages and genotype C only after age 40 years ($p =0.012$) compared to controls
- Replicons of Genotype F derived from persons who developed HCC when placed in immune modulated mice with humanized livers produce multi-oncogenic genes compared with replicons from Genotype F patients without HCC

Livingston et al. Gastroenterology 2007;133:1452-57
Ching et al. Liver International 2016;10:16-22
McMahon et al. Hepatology 2021;74:2965-73
Hayashi D. L. et al. Hepatology 2019;69:19-33

The BCP/PC/2051 mutant up-regulates HCC progression via the fibrosis and inflammation

Up-regulated gene expression in human hepatocytes

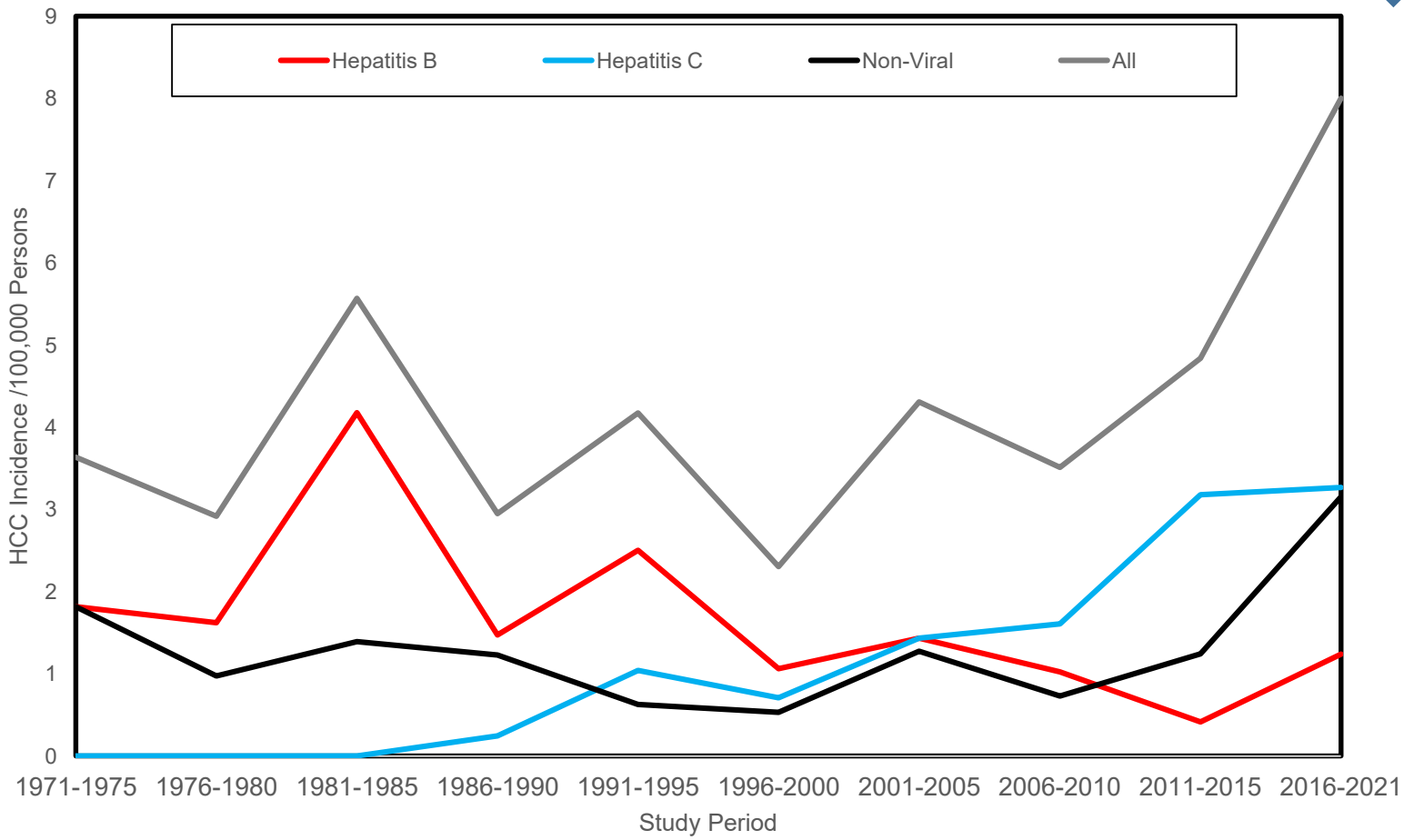




Despite the Success in Halting HBV Transmission and Curing > 1,000 AN with HCV

- Rate of HCC has doubled in AN population since 1970's
- In US 5-year survival of HCC only 13%
  - HCC only cancer in US where survival has decreased rather than increased as it has for all other cancers
  - HCC due to HBV in AN population has significantly decreased and survival after diagnosis increased
  - HCC due to HCV and NAFLD in AN people has significantly increased

Incidence of Hepatocellular Carcinoma (HCC) in the Alaska Native Population:1971 through 2022: Doubling of Incidence 2000 to Present but Rate Due to HBV by 50%



Extension of publication by

Cost-Effective Surveillance for HCC: One Size Does NOT Fit All: What Can We Do?

- In AN population with HBV for enhanced surveillance: AN persons with risk >2/1000, perhaps with a patient navigator or other strategy
  - Persons infected with HBV genotype F exceed the incidence at all ages
  - Persons infected with HBV genotype A and C exceed the incidence in Men >40, women >50-years
  - Persons with family history of HCC at any age
  - Persons with cirrhosis at any age
- Persons infected with HBV genotypes D and B do not exceed AASLD recommended surveillance incidence
  - We will continue surveillance on men 40, women 50 and over with reminder letters, but need to devise enhanced surveillance for C and F

Challenges to Provide Recommended Care for AN People with CHB

- Delivery of care to persons living in remote communities, especially recommendations for every 6 month US exams
- Evaluating extent of liver disease in 1100 AN persons with chronic HBV
  - Regular intervals for encounters: in Person or Telehealth
  - Testing to determine extent of liver scaring: FibroScan
    - How often to perform?
  - Compliance to have blood drawn and US despite reminder letters

Transient Elastography

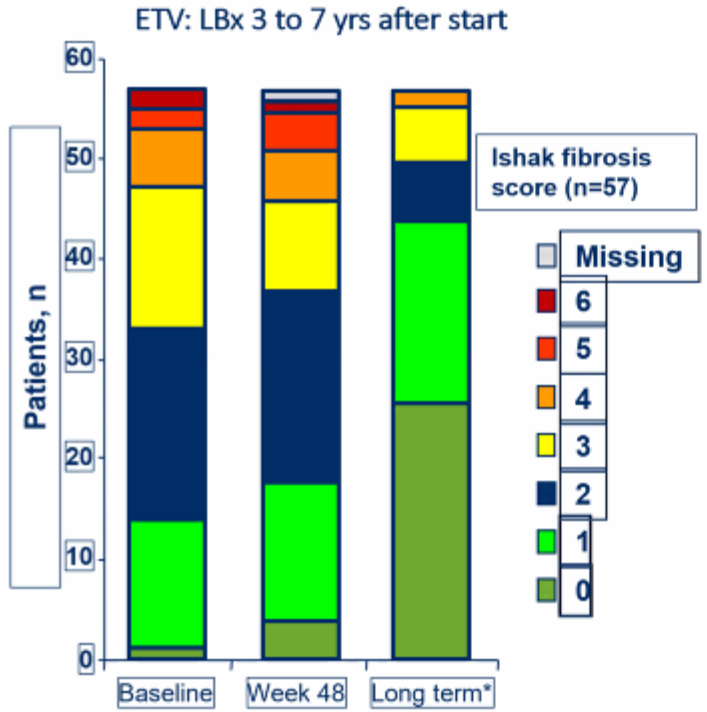
- Allows painless and simultaneous measurement of two quantitative parameters:
- Liver stiffness expressed in kPa
  - Correlated to liver fibrosis [1]
- Controlled Attenuation Parameter (CAP™) expressed in dB/meter
  - Correlated to liver steatosis [2]
- Both quantitative parameters are assessed on the same volume of liver tissue
- 100 times bigger than liver biopsy

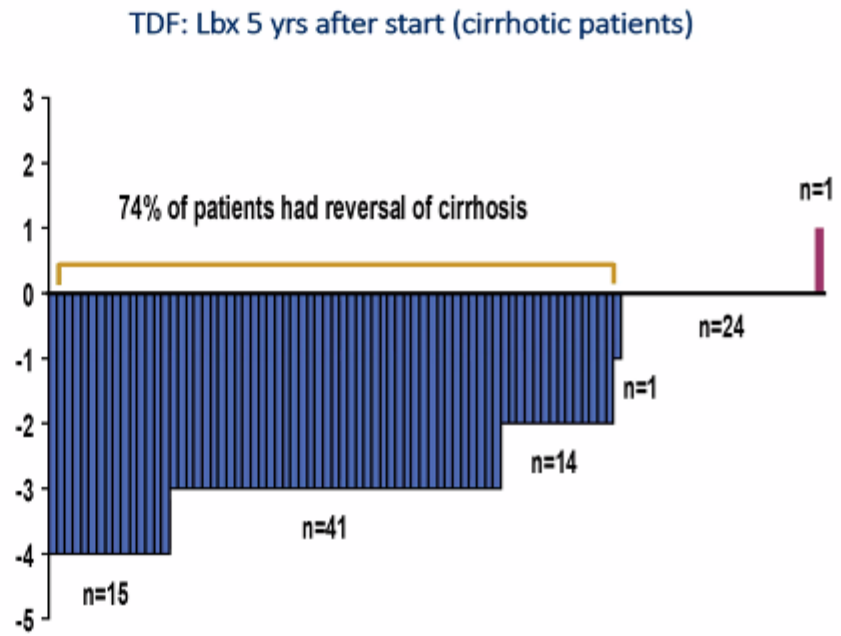
1. Friedrich Rust, et al. *Gastroenterology*. 2008; 2. Sasso, et al. *Journal of Viral Hepatitis*. 2011.

Treatment of Chronic HBV (CHB) Infection in Alaska: Not Always Clear

- The treatment recommendations for which persons with chronic HBV, though evidence based, do not clearly identify every patient who will benefit and all instances where treatment may not help.
  - Persons with active liver inflammation and a high HBV DNA (how high?) need treatment
  - Antiviral medications will reduce HBV DNA, improve liver inflammation and may reverse liver fibrosis
  - Many Persons' cellular immune system can suppress virus and antiviral therapy could blunt this natural immune response
  - One third of persons with CHB also have NAFLD which independently can cause liver inflammation, antiviral therapy may not help

NUC Treatment outcome: Fibrosis Regression





Chang TT, et al. Hepatology 2010;52:886-893; Schiff ER, et al. Clin Gastroenterol Hepatol. 2011; 9:274-276; Marcellin P, et al. The Lancet 2013; 381(9865): 468-475.

Table 5. Service coverage indicators for the core interventions of the Global Health Sector Strategy (GHSS) on viral hepatitis: 2015 baseline and targets

				Targets	
	Interventions	Indicator	2015 baseline	2020	2030
1	Hepatitis B vaccination	HEPB3 coverage	84%	90%	90%
2	HBV PMTCT[a]	HEP vaccine birth dose coverage	39%	50%	90%
3	Blood safety	Donations screened with quality assurance	97%	95%	100%
	Injection safety	Proportion of unsafe injections	5%	0%	0%
4	Harm reduction	Syringes & needles distributed/PWID/year	27	200	300
5	Testing services	% HBV-infected diagnosed	9%	30%	90%
		% HCV-infected diagnosed	20%	30%	90%
	Treatment	% diagnosed with HBV on treatment	8%[b]	–[c]	80%[d]
		% diagnosed with HCV started on treatment	7%[b]	–[c]	80%[d]

Summary: Alaska Native People Elimination WHO Goals – Have We ACHIEVED This?

Intervention	Indicator	2015 Baseline	2020 Target	2030 Target
HBV Infant Vaccination	HEP3 coverage by 12 months of age	>80%*	>80%*	90%
HBV PMTC Transmission	HEP vaccine birth dose coverage	>90%*	>90%*	>90%*
Blood Safety	Blood Bank Screen	100%*	100%*	100%*
Injection Safety	Proportion Unsafe injections	<5%*	0%*	0%*
Harm Reduction	Syringe/needle distributed to PWID/year	unknown	200	300
Testing Services	% HBV infected Dx	>95%*	>95%*	>95%*
Linkage to care	% HBV positive	>90%*	>90%*	>90%*

*2030 WHO Elimination Goal Achieved

Influence of Alaska HBV Programs Internationally

- Staff from the Liver Disease Program at ANTHC and AIP have been invited multiple times to WHO and multiple other international forums to help propose and evaluate global elimination programs for both HBV and HAV
- Served as Co-Authors of US Hepatitis B Practice Guidelines 2009 till present
- Served as Co-Chairs of WHO Hepatitis B Guidelines 2015
- ANTHC and AIP Programs on hepatitis A and B visited by multiple public health organizations and officials from around the world

Tools to Eliminate HBV in US: Where Programs are Succeeding and Where they are Lagging Behind

- In the US: Recent new initiatives
  1. In November 2021 the ACIP recommended universal hepatitis B vaccine for all adults
  2. CDC DVH has drafted a recommendation for universal screening of all adults for HBV seromarkers likely will be implemented before the end or this year or early next year
- Where the US lags behind in reaching the WHO HBV Elimination Goals
  - Adult high risk vaccination
  - Identification of US residents who have chronic HBV and linking those infected to care
  - Educating and training HCW to find and care for those with chronic HBV

US New Recommendations for HBV

- HBV
  - Development of HBV medications to eradicate live virus is going strong but no miracle drugs have been developed

What's Coming up Next Year Regarding Elimination of Viral Hepatitis in Alaska

Hepatitis A Virus (HAV)

How Alaska went from the highest incidence of acute HAV in the past century to now the lowest in the world
How long will protection after initial HAV vaccination series last?
Results of the long-term studies on the protection of HAV vaccine that have

Hepatitis C Virus (HCV)

Alaska Native Tribal HCV program
HAWG: Statewide collaborative HCV elimination program
Challenges for delivering HCV screening and treatment services to AN people living in isolated rural communities
Rural community screening and treatment program using CHA/P and telemedicine

Question #1: Which is correct? Hepatitis B transmission among Alaska Native People

1. Has decreased due to vaccination but still is higher than the national average
2. Has decreased but is still equal to the national average
3. Has not decreased
4. Has been eliminated and only rare new cases have been seen
5. Has decreased and is lower than the national average

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Question Number 2: Hepatocellular Carcinoma (HCC): Which Answer is Correct?

1. HCC rates for persons infected with chronic Hepatitis B Virus (HBV) are high only in adults with cirrhosis
2. HCC rates are high in adults with HBV over 40 years of age and in children infected with HBV genotype F
3. HCC rates in AN population has doubled this century and the leading cause is now hepatitis C with NAFLD number two
4. Current antiviral medications for HBV can cure patients infected with this virus but hepatitis C cannot be cured yet
5. Both answers 2 and 3 are correct

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Today, noon – 1pm:
AK ID ECHO: HCV-HIV-PrEP-STIs

Didactic:

Hepatitis B Screening and Lab Interpretation

Presenter:
Brian McMahon, MD

https://anthc.org/project-echo/hcv-hiv-prep-stis-echo/

Continuing Education credits are available.

September 15, 2022, this Thursday, noon – 1pm

AK Liver Disease ECHO

Didactic:
Trauma Informed Care and Liver Disease

Presenter:
Marianne Hammersley, LCSW

https://anthc.org/project-echo/alaska-liver-disease-echo/

Continuing Education credits are available.

Next LiverConnect

October 11, 2022

Topic:

TBA

Presenter:
TBA

To view past presentations, visit: anthc.org/hep, click on the LiverConnect-AK ECHO link, Scroll down and select a recording to view.