Viral Hepatitis & Liver Cancer
Who has Hep?

Tribal Collaborative, November 18, 2015

Clarisse Tsang, MPH
Viral Hepatitis Prevention Coordinator/Senior Epidemiologist
Top Reported Infectious Diseases in AZ

- Chlamydia
- Influenza
- **Hepatitis C (HCV)**
- Valley fever
- Gonorrhea
- Invasive MRSA
- Salmonella
- **Hepatitis B (HBV)**

By Paul Townsend/ CC BY-SA 2.0

What is Hepatitis?

• ‘Hepa’ means liver
• ‘Itis’ means inflammation

Inflammation of the liver may be caused by alcohol, side effect of medications, toxins, bacteria or VIRAL INFECTION
Functions of the Liver

- Largest internal organ in the human body
- Breaks down food, chemicals, medications and drugs
- Converts nutrients into energy
- Helps manage levels of certain substances in the body
- Regulates fat storage
- Regulates blood-clotting factors

<table>
<thead>
<tr>
<th>HEALTHY LIVER</th>
<th>FIBROSIS</th>
<th>CIRRHOSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Healthy Liver" /></td>
<td><img src="image2" alt="Fibrosis" /></td>
<td><img src="image3" alt="Cirrhosis" /></td>
</tr>
</tbody>
</table>
Viral Hepatitis

- Hepatitis A Virus (HAV)
- Hepatitis B Virus (HBV)
- Hepatitis C Virus (HCV)
- Hepatitis D Virus (HDV) – coinfection with HBV
- Hepatitis E Virus (HEV)

* Infection with one hepatitis virus does not turn into another hepatitis virus
### Hepatitis A

- **US:** ~3,500 new acute infections in 2013
- **AZ:** 73 reported/yr
- **Transmission:** Oral-fecal contact, Contaminated food

### Hepatitis B

- **US:** ~19,800 new acute infections in 2013
- **AZ:** 150 acute/yr, 893 chronic/yr
- **Transmission:** Bloodborne (IDU, Sex), Occupational exposure, Perinatal

### Hepatitis C

- **US:** 29,700 new acute infections in 2013
- **AZ:** ~10,000/yr
- **Transmission:** Bloodborne (IDU), Occupational exposure, Less common: Sex, Perinatal

### Symptoms:

- fever, fatigue, loss of appetite, nausea, vomiting, abdominal pain, gray-colored bowel movements, joint pain, jaundice
Viral Hepatitis & Liver Cancer

Hepatocellular Carcinoma (HCC)

- 78% due to HBV/HCV

Liver Cirrhosis

- 57% due to HBV/HCV

- 3,000 deaths/year from HCC or chronic liver disease caused by HBV/HCV in US*

- Incidence and mortality of many types of non-liver cancers were high, and age at diagnosis and death younger, in patients with chronic HCV infection compared to general population**


Viral Hepatitis & Death

- ~19,000 deaths due to HCV in US in 2013
  - HCV deaths increased from 1999-2007; whereas HIV deaths decreased**

- Chronic HCV all-cause mortality is more than twice that of HCV-negative individuals***

**Ly et al, The Increasing Burden of Mortality From Viral Hepatitis in the United States Between 1999 and 2007; 2012 Annals of Internal Medicine
***El-Kamary et al, All-Cause, Liver-Related, and Non-Liver-Related Mortality Among HCV-Infected Individuals in the General US Population; 2011 Clinical Infectious Diseases
AI/AN & Liver Disease

Cirrhosis-attributed deaths

- AI/AN have the highest rate of liver-related death in the US*
- HCV infection was most commonly identified chronic liver disease etiology associated with an HCC-related death (13%)**
- HCV infection has disparate effect on mortality among AI/AN*

*Vong and Bell, 2004
**Suryaprasad, 2014
HEPATITIS B
Hepatitis B in AZ

150 acute/year
893 chronic/year
Chronic Hepatitis B in AZ

Average 5 Year Rate

- Asian/Pl: 43.2
- Black: 15.1
- Native American: 3
- White: 2.5
- Hispanic/Latino: 1.5

By Katsuhito Nojiri/ CC BY-SA 2.0
Hepatitis B Vaccine
3 dose series

Hepatitis B Vaccine Adolescent and Adult Schedule

<table>
<thead>
<tr>
<th>Dose</th>
<th>Usual Interval</th>
<th>Minimum Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary 1</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Primary 2</td>
<td>1 month</td>
<td>4 weeks</td>
</tr>
<tr>
<td>Primary 3</td>
<td>5 months</td>
<td>8 weeks*</td>
</tr>
</tbody>
</table>

*third dose must be separated from first dose by at least 16 weeks

By NIAID/ CC BY-SA 2.0
CDC Pinkbook: http://www.cdc.gov/vaccines/pubs/pinkbook/hepb.html
HEPATITIS C
Rising Numbers
Acute Hepatitis C in U.S.*

*Not all states report HCV to CDC

By FutUndBeidl/ CC BY-SA 2.0, Mar Willard CC BY-SA 2.0, CDC
Acute Hepatitis C by Race/Ethnicity in U.S.

*Not all states report HCV to CDC
By Donovan Shortey/ CC BY-SA 2.0, CDC
Hepatitis C by Race/Ethnicity in AZ

2002 AZ population

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>1998-2006 HCV cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>64%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>25%</td>
</tr>
<tr>
<td>AI/AN</td>
<td>5.0% 7.6%</td>
</tr>
<tr>
<td>Black</td>
<td>3.1% 6.9%</td>
</tr>
<tr>
<td>Asian/PI</td>
<td>1.9% 0.5%</td>
</tr>
</tbody>
</table>

2002 AZ population 1998-2006 HCV cases
Hepatitis C in AZ

~10,000/year
66% male

By Walter/ CC BY-SA 2.0
Poisons most commonly specified on death certificates in 2013 were pharmaceutical opioids, alcohol, and methamphetamines and other stimulants.
Age-Adjusted Poison Mortality Rates* by Race/Ethnicity in AZ

*per 100,000 population
CDC Know More Hepatitis Campaign

BORN FROM 1945 to 1965?

BABY BOOMERS HAVE THE HIGHEST RATES OF HEPATITIS C.

Talk to your doctor about getting tested. Early detection can save lives.

http://www.cdc.gov/knownmorehepatitis
Hepatitis affects many Arizonans.

Target testing of at-risk populations.
Hepatitis – AI/AN Collaborations, North Dakota

Enhanced screening among one Tribal Area

<table>
<thead>
<tr>
<th></th>
<th>No. Tests Positive</th>
<th>No. Tests Ordered</th>
<th>Percent Positivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlamydia</td>
<td>218</td>
<td>2,041</td>
<td>10.7%</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>71</td>
<td>2,041</td>
<td>3.5%</td>
</tr>
<tr>
<td>Syphilis (RPR)</td>
<td>59</td>
<td>1,933</td>
<td>3.1%</td>
</tr>
<tr>
<td>HIV</td>
<td>0</td>
<td>1,916</td>
<td>0.0%</td>
</tr>
<tr>
<td>Hepatitis C</td>
<td>126</td>
<td>1,108</td>
<td>11.4%</td>
</tr>
</tbody>
</table>
Hepatitis – AI/AN Collaborations, Alaska

Rapid Testing Project:
- 1,078 tested; 236 (22%) reactive
  - 213 AI/AN tested; 40 (19%) reactive
  - Referred to Alaska Native Tribal Health Consortium for follow-up
Hepatitis – AI/AN Collaborations, Oklahoma

In 2013, 4,312 persons 18-65 years old screened
  • 6% were seropositive for HCV

Launch of new CDC funded initiative
Goal: To improve health by eliminating HCV among AI/AN in the Cherokee Nation Health System by developing a community-based program to test, treat and cure HCV coupled with public awareness efforts to reduce new infections.
Clarisse Tsang
Viral Hepatitis Prevention Coordinator

- Manage the ADHS rapid HCV antibody testing program
- Educate about CDC/USPSTF recommendations to test at-risk populations for HBV and HCV and link people to care
  - Clinician honor roll
  - HCV resource directory
- Conduct epidemiological analysis to assess burden of HAV, HBV, and HCV in AZ
- Integrate hepatitis activities across ADHS

**Website:** HepatitisAZ.org
Where do we go from here?
The Viral Hepatitis Program is located within the Office of Infectious Disease Services, under the Bureau of Epidemiology and Disease Control. The goal of the Viral Hepatitis Program is to increase awareness amongst those at risk for viral hepatitis about the disease, to detect hepatitis cases and link them to care, to improve education amongst healthcare providers to test at-risk populations, to investigate potential hepatitis exposures and implement control measures, to improve surveillance and understanding of viral hepatitides in Arizona. The Viral Hepatitis Program works with local, state, and federal partners in implementing the goals of the national action plan to combat the silent epidemic of viral hepatitis.