

5th Annual Kentucky Hepatitis Conference

Hepatitis C Screening, Diagnosis & Linkage to Care

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Disclosures

- Barbra Cave
 - Speaker Bureaus: AbbVie, Gilead, Merck, Salix
 - Advisory Boards: AbbVie, Gilead, Dova
 - Research: AbbVie, Gilead, Conatus, Intercept, Shire, Janssen, Takeda
- Danielle Revert:
 - Speaker Bureaus: AbbVie, Gilead
 - Advisory Board: Gilead

Outline

1. Epidemiology Overview (Barbra)
2. Screening (Danielle)
3. Diagnosis (Danielle)
4. Linkage to Care (Barbra)

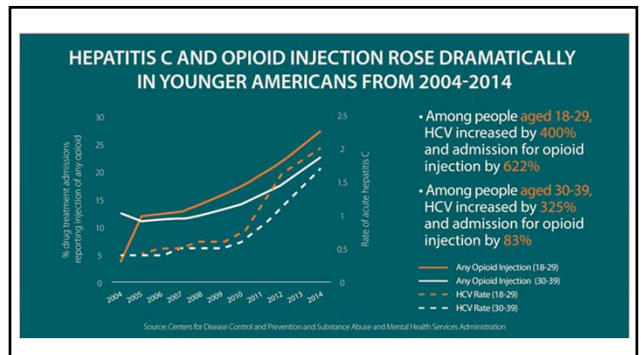
Epidemiology

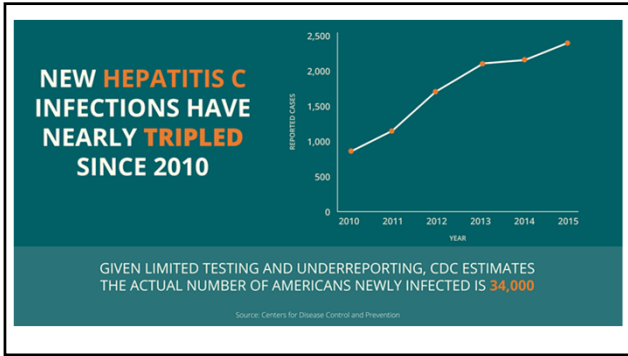
Epidemiology: Let's start with US data

Estimated prevalence: 3.5 million ...right?

No! NHANES database does not include institutionalized people (incarcerated, hospitalized, homeless) or military veterans.

United States estimates up to 5.2 million (Chak et al., 2011)





How does Kentucky compare?

- Acute HCV Incidence: Kentucky ranked #1 from 2011-2014, and #3 2015-2016 (CDC)
- Incidence rate ranged 2.6 (in 2016) to 5.1 (in 2013) per 100,000
- Young Adults > Baby Boomers (Morse, Barritt, & Jhaveri, 2018)

World Hepatitis Day 2017

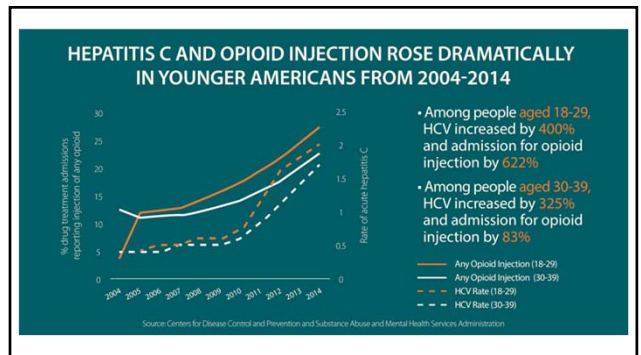
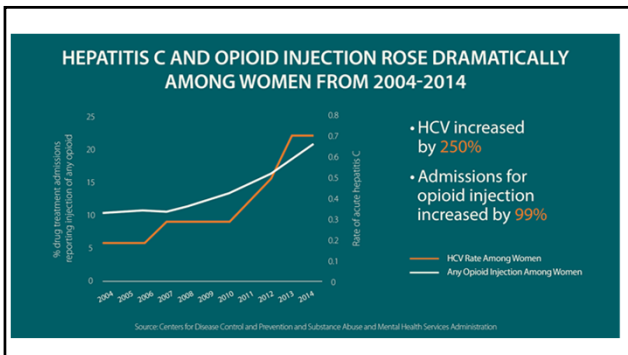
(Cave et al., 2017)

- 488 people tested
- People came from 15 different countries
- HCV Antibody prevalence rate 4.1%
- Universal screening approach: ages ranged 17-89 years, median age 58
- Reactive HCV Ab mean age: 46 years (born in 1971) ← **Not a Baby Boomer**

Kentucky's Women of Childbearing Age

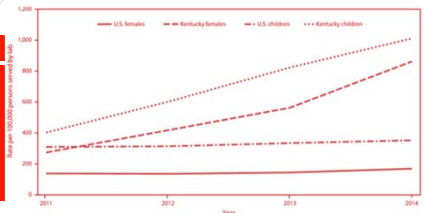
Keep in mind: Childbearing age generally accepted as 15-44 years

There are limitations: many databases group into ages 20-29 and 30-39



Kentucky's Children

(Koneru et al., 2016)



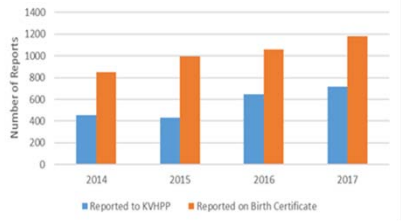
Source: Quind Diagnostics Laboratory data
 *HCV detection rates were calculated as number of females aged 15-44 years who received a positive HCV antibody and/or RNA result per 100,000 females aged 15-44 years served by Quind Diagnostics (i.e., received a laboratory test for any reason) by site of residence. HCV testing rates among children were calculated as number of children aged <=2 years who received a test for HCV antibody and/or RNA per 100,000 children aged <=2 years served by Quind Diagnostics by area of residence.

Kentucky's Children

Evidence suggests HCV transmission occurs mid-gestation (Fauteux-Daniel et al., 2017)

Mandatory reporting for infants born to HCV infected mothers and children under 5 with HCV has been in place since 2015, but reporting remains low

Hepatitis C Reports for Pregnant Women and Mothers in Kentucky by Reporting Source



(Wilburn et al., 2018)

Multi-generational Concerns



Screen → Diagnose
 → Refer & Treat

Recommendation for screening (CDC)

- Adults born from 1945 through 1965
- IV Drug Use
- Certain medical conditions: HIV, long term hemodialysis
- Prior recipients of transfusions or organ transplants
- Exposure concerns

Uncertain need for screening (CDC)

- Recipients of transplanted tissue (e.g., corneal, musculoskeletal, skin, ova, sperm)
- Intranasal drug use
- Persons with a history of tattooing or body piercing
- Persons with a history of multiple sex partners or sexually transmitted diseases
- Long-term steady sex partners of HCV-infected persons

Screening recommendations from AASLD

One-time hepatitis C testing is recommended for persons born from 1945 through 1965.

Everyone should be screened for HCV infection risk factors.

One-time testing should be performed for all persons with behaviors, exposures, and conditions or circumstances associated with an increased risk of HCV infection.

Risk Behaviors:

- Injection-drug use (current or ever, including those who injected only once)
- Intranasal illicit drug use

AASLD Exposure Risks

- Persons on long-term hemodialysis (ever)
- Persons with percutaneous/parenteral exposures in an unregulated setting
- Healthcare, emergency medical, and public safety workers after needle-stick, sharps, or mucosal exposures to HCV-infected blood
- Children born to HCV-infected mother
- Prior recipients of transfusions or organ transplants, including persons who:
- Persons who were ever incarcerated

Other people who need to be screened (AASLD)

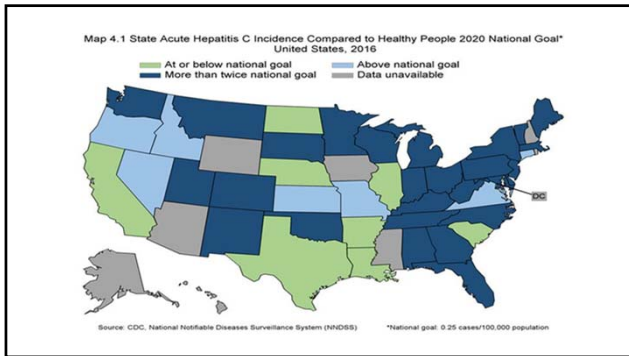
- People with HIV infection
- Sexually-active persons prior to starting pre-exposure prophylaxis (PreP) for HIV
- Unexplained chronic liver disease and/or chronic hepatitis, including elevated ALT levels
- Solid organ donors (deceased and living)

Baby Boomers

- High prevalence
- Increased mortality
 - Liver transplant
 - Liver Cancer
- HCV is a chronic infection
- Liver related costs
- Safe and effective medication

People Who Inject Drugs (PWID)

- Injection drug use is the most significant risk factor for HCV infection (CDC/AASLD)
 - Cause of majority of new infections (ASAM)
 - Approx 80% of American PWID are infected with HCV!
- Significant barriers to follow up and treatment
- It's not just needles:
 - HCV can live outside the body for up to 6 weeks! (CDC)
- Drug use relapse rate 40-60% (NIDA)
- Educate, educate, educate



Screening for Continued Risk Factors

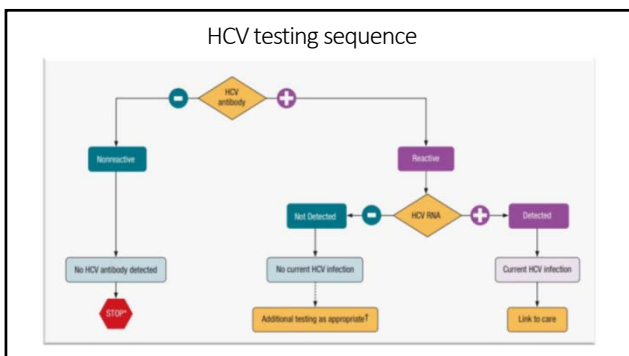
- AASLD:
 - Annual HCV testing for PWID and HIV + MSM
- CDC:
 - Test anyone who may have been exposed in past 6 months.

Other populations

- Pregnant women
 - Kentucky SB 250
 - Screening for HCV in children
- HIV
 - 25% of HIV infected Americans are coinfectd with HCV (CDC)
 - HCV coinfection was significantly associated with increased mortality (Thornton et al., 2017)
 - Treatment available
- People who are incarcerated
 - Prevalence (Dolan, 2016)
 - Barriers to care

Universal Screening

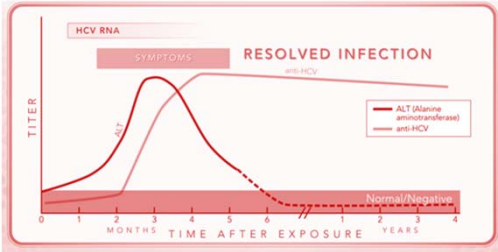
- HCV is underdiagnosed (CDC)
- Johns Hopkins Study
 - 25% would be missed using current screening recommendations
- Eradication
- Cost Efficacy (Schiffman)
- Who is your population?



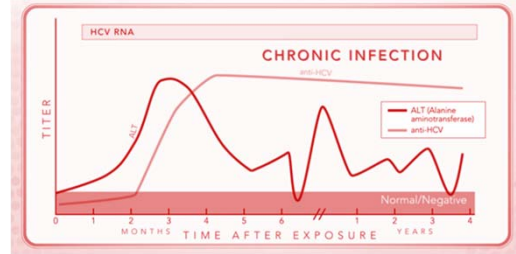
HCV RNA testing

- Key test for HCV diagnosis
- Qualitative vs. Quantitative
- If negative
 - No Current infection
 - Self cure
 - Previously treated
- If positive
 - Current infection with HCV
 - Refer & Treat
- Reflex is available
- **CDC recommends getting RNA regardless of HCV Ab if you suspect recent exposure**

Serologies in Acute HCV--with resolution



Serologies in Chronic HCV



HCV Clinical Presentation

Most patients are asymptomatic.

Acute HCV and cirrhosis can present with:

- Fever
- Fatigue
- Dark Urine
- Vomiting
- Jaundice
- Ascites
- Clay-colored stool
- Abdominal pain
- Loss of appetite
- Nausea
- Joint Pain

Extrahepatic Manifestations

Immune-related

- Mixed cryoglobulinemia
- Cryoglobulinemic vasculitis
- B-cell NHL
- Sicca syndrome
- Arthralgia/myalgia
- Autoantibody production
- Polyarteritis nodosa
- Monoclonal gammopathies
- Immune thrombocytopenia

Inflammation-related

- Type 2 diabetes mellitus
- Insulin resistance
- Glomerulonephritis
- Renal insufficiency
- Fatigue
- Cognitive impairment
- Depression
- Polyarthritis/fibromyalgia
- Cardiovascular disorders

Common Traps

- Waiting to refer
- Downplaying disease severity
- Delaying treatment
- Not confirming diagnosis with HCV RNA
- Not screening appropriately
 - Universal screening?

Do not be lulled into a false sense of security by normal LFTs or lack of symptoms!

Who Needs Follow Up?

Anyone with a +HCV RNA should be evaluated for treatment.

Even if someone cannot be treated currently (i.e. lack of insurance, pregnant), link them to care

Linkage to Care

Linkage to Care: What is it?

Term coined in the HIV arena: completion of first medical clinic visit after diagnosis

From AASLD:

Linkage to Care

Recommendation for Linkage to Care

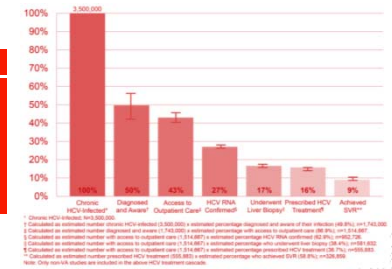
RECOMMENDED	RATING
All persons with active HCV infection should be linked to a clinician who is prepared to provide comprehensive management.	IIa, C

Linkage to Care is a Continuum

- Screen
- Confirm
- Refer
- Treat →
 - Genotype/Fibrosis
 - Treatment readiness
 - Prescribe
 - Complete therapy
 - SVR12

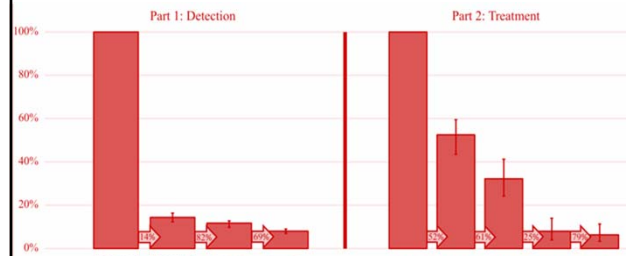
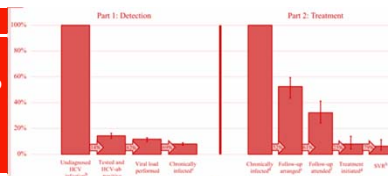
Linkage to Care: How Well Were We Doing?

(Tehera et al., 2014)



How Well Are We Doing Now?

(Anderson et al., 2017)



(Anderson et al., 2017)

What's Next?

- All-oral pangenotypic regimens approved from age 3 years and older (~2020)
- HCV treatment for pregnant women...during pregnancy!
- Increased access to non-invasive fibrosis assessment tools
- Providers recognize HCV as a driving force behind other chronic diseases (depression, fatigue, heart disease, diabetes)... HCV is not all about the liver!

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Thank you!
Questions?

