Hepatitis in Kentucky: Updates on Epidemiology, Testing, and Treatment

Happy Holidays! On behalf of the KY AVHPC Team, we would like to wish you and your family a wonderful Christmas holiday season. In this December 2018- Kentucky Hepatitis Connections, you will find the latest information on the hepatitis A Outbreak in Kentucky. In addition, the most recent hepatitis C education and treatment information, opportunities for viral hepatitis continuing professional education, and a reminder that effective July 2018- all pregnant women in Kentucky are to be tested for hepatitis C virus.

As always, feel free to forward, copy, and/or distribute this newsletter to other professionals in your network. On behalf of our team, thanks for all of your great work in keeping our citizens throughout the Commonwealth healthy and safe. We hope you enjoy our December 2018 newsletter. Merry Christmas!

Kathy Sanders, RN, MSN
December 2018

Kathy Sanders, RN, MSN
Adult Viral Hepatitis Prevention
Program Coordinator
502-564-3261, ext. 4236
Kathyl.Sanders@ky.gov

Amanda Wilburn, MPH
Epidemiologist and
Viral Hepatitis Surveillance
Coordinator
Amanda.Wilburn@ky.gov

Deborah Bolton- Plucknett, RN
Perinatal Hepatitis B Prevention
Program Coordinator
502-564-4478 ext. 4259
Deb.Bolton-Plucknett@ky.gov
HEPATITIS A CORNER:
Kentucky's hepatitis A outbreak is the worst in the nation

Since August 1, 2017, the Kentucky Department for Public Health (DPH) has identified 3,122 cases of acute hepatitis A, a liver disease caused by hepatitis A virus. An increase in cases since Aug. 1, 2017, primarily among the homeless and drug users, prompted declaration of a statewide outbreak in Nov. 2017. Viral sequencing has linked several outbreak-associated cases in Kentucky with outbreaks in California and Utah.

DPH is working closely with the Centers for Disease Prevention and Control (CDC) and local health departments to provide guidance and education to health professionals and at-risk populations. Treatment for acute hepatitis A generally involves supportive care, with specific complications treated as appropriate. Hepatitis A is a vaccine-preventable disease. For more information on Kentucky's hepatitis A outbreak, please visit https://chfs.ky.gov/agencies/dph/dehp/idb/Pages/Hepatitis%20A%20Outbreak.aspx

Counts as of December 8, 2018:

Total Outbreak: 3,122
Hospitalizations: 1,576
Deaths: 19

Statewide hepatitis A statistics for Kentucky

Since the hepatitis A outbreak began in Kentucky a year ago, there have been 3,122 confirmed cases, according to the state. Out of those cases, 1,576 people have been hospitalized and 19 people have died. Hepatitis A is a viral infection of the liver that can cause loss of appetite, nausea, tiredness, fever, stomach pain, brown colored urine, and light colored stools. Yellowing of the skin or eyes may also appear. People may have some or none of these symptoms. It could take up to seven weeks after being exposed to the virus for someone to become ill.

The virus usually spreads when a person unknowingly ingests the virus from objects, food or drinks contaminated by small, undetected amounts of stool from an infected person, the news release stated. It can also spread when an infected person does not wash his or her hands after using the bathroom or engages in behaviors that increase risk of infection. The CDC recommends the hepatitis A vaccination for the following groups:

- All children at age 1
- Travelers to countries that have high rates of hepatitis A
- Family members and caregivers of recent adoptees from countries where hepatitis A is common
- Men who have sexual contact with other men
- People who use injection and non-injection illegal drugs
- People with chronic (lifelong) liver diseases, such as hepatitis B or hepatitis C
- People who are treated with clotting-factor concentrates
- People who work with hepatitis A infected animals or in a hepatitis A research laboratory

https://chfs.ky.gov/agencies/dph/dehp/idb/Pages/Hepatitis%20A%20Outbreak.aspx
Brief Description of Outbreak: In November 2017, the Kentucky Department for Public Health (DPH) identified an outbreak of acute hepatitis A. The increase in cases observed in Kentucky was well over the 10-year average of reported hepatitis A cases, and several cases have been infected with hepatitis A virus (HAV) strains genetically linked to outbreaks in California, Utah, and Michigan. Similar to hepatitis A outbreaks in other states, the primary risk factors have been illicit drug use and homelessness. A contaminated food source has not been identified, and HAV transmission is believed to have occurred through person-to-person contact. Below is a weekly and cumulative update on the outbreak. Please note that all data is preliminary and subject to change as additional reports are received.

In accordance with 902 KAR 2:020, cases of acute hepatitis A should be reported within 24 hours.

The case definition used for outbreak-associated acute hepatitis A cases is available upon request.

Table 1: Summary of Outbreak-Associated Acute Hepatitis A Cases*

<table>
<thead>
<tr>
<th>Update for Week 49:</th>
<th>Total Case Counts: 8/1/2017 – 12/8/2018:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of new cases (n=61):</td>
<td>Confirmed(^\wedge) - 0 Probable - 40 Suspected - 21</td>
</tr>
<tr>
<td>Number of counties with new cases:</td>
<td>28</td>
</tr>
<tr>
<td>Number of individuals with specimens submitted for genotyping where results are available:</td>
<td>0</td>
</tr>
<tr>
<td>Number of cases with genotype IB among those with genotype testing:</td>
<td>0</td>
</tr>
<tr>
<td>Number of Hospitalizations:</td>
<td>20</td>
</tr>
<tr>
<td>Number of deaths Reported(\dagger):</td>
<td>0</td>
</tr>
</tbody>
</table>

* Cases are reported based on date of specimen collection
\(^\wedge\) Cases are generally confirmed weeks after submission for testing, so will only be reflected in total case counts.
\(\dagger\) Deaths are defined as any outbreak-associated acute hepatitis A case with documentation of hepatitis A as a contributing factor to the individual’s death.
Figure 1: Geographic Distribution of Outbreak-Associated Cases by County

KY17-089 Distribution of Outbreak-Associated Acute Hepatitis A Cases by County, August 1, 2017 - December 8, 2018

Total Number of Cases
- 0 or Did Not Report
- 1 - 10
- 11 - 50
- 51 - 100
- > 100

n = 98 counties with outbreak-associated cases
Counties where cases have not previously been identified: Trigg.
Figure 3: Major Interstates and Syringe Exchange Programs in Counties Reporting Outbreak-Associated Cases

KY17-089 Major Interstates and Syringe Exchange Programs in Counties Reporting Outbreak-Associated Acute Hepatitis A Cases, August 1, 2017 - December 8, 2018

- Syringe Exchange Programs
- Major Interstates
- Counties with Cases

Major Interstates include: I-24, I-264, I-665, I-775, I-771, I-65, I-69, I-75, Brent T. Combs Mountain Parkway, Hal Rogers Parkway, Louie B. Nunn Cumberland Parkway, Martha Lane Collins Bluegrass Parkway, and Wendell H Ford Western KY Parkway
Figure 4: Outbreak-Associated Cases by Age

KY17-089 Outbreak-Associated Cases of Acute Hepatitis A in Kentucky, by Age, August 1, 2017 - December 8, 2018

* The mean age of cases is 37.5 years, and the median age is 36.0 years.

Table 3: Frequent Risk Factors of Outbreak-associated Cases

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Number of Cases Reporting Risk Factor (n=2565)* †</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homelessness + No/Unk Illicit Drug Use</td>
<td>47 (1.8%)</td>
</tr>
<tr>
<td>Illicit Drug Use + No/Unk Homelessness</td>
<td>1764 (69%)</td>
</tr>
<tr>
<td>Homelessness + Illicit drug use</td>
<td>253 (10%)</td>
</tr>
<tr>
<td>No Outbreak-Related Risk Factors</td>
<td>501 (20%)</td>
</tr>
</tbody>
</table>

* Risk factor information is unavailable for 557 (17.8%) of all outbreak-associated cases.
† The categories below do not add up to the total number in this count due to other possible risk factor combinations not shown in the table.
# At this point in the outbreak, MSM is no longer considered an outbreak-related risk factor. Percentages in this table may have changed due to removing MSM from risk factor combinations.
^ 34 MSM cases have been reported. Of those, 10 have reported no other risk factors.
Figure 6: Epidemic-curve (Epi-Curve) of Outbreak-Associated Cases by Month of Onset

KY17-089 Epi-Curve of Outbreak-Associated Cases by Month of Onset, August 1, 2017 - December 8, 2018
(Current month shown in gold - case counts are not complete)

* Date of onset has been reported for 79.7% (or 2489/3122) of cases.
Hepatitis A Virus Outbreaks Associated With Drug Use and Homelessness — California, Kentucky, Michigan, and Utah, 2017

Monique Foster, MD; Sumathi Ramachandran, PhD; Katie Myatt, MS; Danielle Donovan, MS; Susan Bohm, MS; Jay Fiedler, MS; Bree Barbeau, MPH; Jim Collins, MPH; Douglas Thoroughman, PhD; Eric McDonald, MD; Jonathan Ballard, MD; Jeffrey Eason, MPH; Cynthia Jorgensen, DrPH


Abstract and Introduction

Introduction

During 2017, CDC received 1,521 reports of acute hepatitis A virus (HAV) infections from California, Kentucky, Michigan, and Utah; the majority of infections were among persons reporting injection or noninjection drug use or homelessness. Investigations conducted by local and state health departments indicated that direct person-to-person transmission of HAV infections was occurring, differing from other recent, large HAV outbreaks attributed to consumption of contaminated commercial food products. Outbreaks with direct HAV transmission among persons reporting drug use or homelessness signals a shift in HAV infection epidemiology in the United States, and vaccination of these populations at high risk can prevent future outbreaks.

Epidemiologic Investigation

Outbreak cases were defined as those meeting the 2012 CDC-Council of State and Territorial Epidemiologists' (CSTE) definition of acute hepatitis A infection,* having a specimen matching an outbreak strain, or an epidemiologic link to a previously identified case. Local and state health department personnel reviewed clinical charts and interviewed patients using standard questionnaires that evaluated risk factors associated with infection, including recent drug use, sexual history, housing status, recent international travel, and contact with another person with HAV infection.

Among states reporting increases in HAV infections to CDC outside or inside the National Notifiable Disease Surveillance System, only California, Kentucky, Michigan, and Utah reported sustained within-state transmission. This report includes outbreaks that occurred during 2017 in these four states. Additional cases reported from other states were excluded because they were attributed to HAV exposure during travel to one of the four outbreak states, and because prolonged, ongoing transmission did not occur in the other states.

During 2017, a total of 1,521 outbreak-associated HAV cases were reported from California, Kentucky, Michigan, and Utah, with 1,073 (71%) hospitalizations and 41 (3%) deaths. Among patients for whom clinical or laboratory records were available for review, 42 (3%) had confirmed or probable hepatitis B virus coinfection, and 341 (22%) had confirmed or probable hepatitis C virus coinfection. Overall, 866 (57%) patients reported drug use, homelessness, or both. Among all cases, 818 (54%) had an indication for hepatitis A vaccination before becoming infected (i.e., using drugs or being men who had sex with men [MSM]) as recommended by the Advisory Committee on Immunization Practices (ACIP).[1]
### Table 1. Demographic and clinical characteristics of hepatitis A outbreak–associated cases, by state — four states, 2017

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>California</th>
<th>Kentucky</th>
<th>Michigan</th>
<th>Utah</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cases, no.</td>
<td>682</td>
<td>59</td>
<td>632</td>
<td>148</td>
<td>1,521</td>
</tr>
<tr>
<td>Male, no. (%)</td>
<td>471 (69)</td>
<td>39 (66)</td>
<td>412 (65)</td>
<td>97 (66)</td>
<td>1,019 (67)</td>
</tr>
<tr>
<td>Median age, yrs (range)</td>
<td>42 (5–87)</td>
<td>36 (1–84)</td>
<td>41 (&lt;1–90)</td>
<td>38 (22–83)</td>
<td>—</td>
</tr>
<tr>
<td>Earliest onset, date</td>
<td>01/17/2017</td>
<td>08/29/2017</td>
<td>01/05/2017</td>
<td>05/08/2017</td>
<td>—</td>
</tr>
<tr>
<td><strong>Outcome</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospitalized, no. (%)</td>
<td>442 (65)</td>
<td>45 (76)</td>
<td>508 (80)</td>
<td>78 (53)</td>
<td>1,073 (70)</td>
</tr>
<tr>
<td>Died, no. (%)</td>
<td>21 (3)</td>
<td>0</td>
<td>20 (3)</td>
<td>0</td>
<td>41 (3)</td>
</tr>
<tr>
<td><strong>Comorbidities</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatitis B infection, no. (%)</td>
<td>10 (1)</td>
<td>4 (7)</td>
<td>16 (3)</td>
<td>12 (8)</td>
<td>42 (3)</td>
</tr>
<tr>
<td>Hepatitis C infection, no. (%)</td>
<td>116 (17)</td>
<td>29 (49)</td>
<td>165 (26)</td>
<td>31 (21)</td>
<td>341 (22)</td>
</tr>
</tbody>
</table>

### Table 2. Risk exposures of hepatitis A outbreak–associated patients, by state — four states, 2017

<table>
<thead>
<tr>
<th>Reported risk exposure</th>
<th>No. (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>[California] [Kentucky] [Michigan] [Utah] [Total]</td>
<td></td>
</tr>
<tr>
<td>Homelessness and drug use</td>
<td>247 (36)</td>
</tr>
<tr>
<td>Homelessness only</td>
<td>65 (10)</td>
</tr>
<tr>
<td>Homelessness, drug use unknown</td>
<td>43 (6)</td>
</tr>
<tr>
<td>Drug use only</td>
<td>67 (10)</td>
</tr>
<tr>
<td>Drug use, homelessness unknown</td>
<td>11 (2)</td>
</tr>
<tr>
<td>Neither homelessness nor drug use</td>
<td>190 (28)</td>
</tr>
<tr>
<td>Men who have sex with men</td>
<td>18 (3)</td>
</tr>
<tr>
<td>Unknown</td>
<td>59 (9)</td>
</tr>
</tbody>
</table>

* Percentage totals sum >100 because of men who had sex with men being included independently and as part of "homelessness," "drug use," and "neither homeless nor drug use" categories.


Read More: [https://www.cdc.gov/mmwr/volumes/67/wr/mm6743a3.htm](https://www.cdc.gov/mmwr/volumes/67/wr/mm6743a3.htm)
HEPATITIS C CORNER:

HEPATITIS C IN U.S.
Federal Government Leadership & Resources Needed for Elimination

Washington, DC – On November 29th 2018, the Centers for Disease Control and Prevention (CDC) released new data indicating nearly 2.4 million adults, or 1 percent of the adult population, are living with hepatitis C in the U.S. Hepatitis C is a curable viral infection that if left untreated can cause scarring of the liver, liver cancer, and death.

“Today’s report demonstrates that federal and state governments need to do more to ensure individuals living with hepatitis C are able to access the highly effective curative drugs,” said Carl Schmid, deputy executive director of The AIDS Institute. “We have a cure, which provides the ability to eliminate hepatitis C as a public health threat, but now we need the leadership and resources to make it a reality.”

Hepatitis C curative drugs have existed since late 2013. However, many state Medicaid programs and private payers restrict access to them, requiring individuals to become sicker and advance to a later stage of the disease, abstain from substance use, or see a certain type of specialist before being allowed to start treatment.

Earlier this year, Dr. Robert Redfield, the director of the CDC, commented, “We must never underestimate the possible. Hepatitis B and hepatitis C will be eliminated and relinquished into the history books of medicine. And I would state that now is the time to begin that task.”

We now need the federal government’s commitment to ensure elimination becomes a reality and accelerate broad hepatitis testing, surveillance, and linkage to care and treatment efforts nationwide. Most immediately, we need a commitment to fund those efforts. Currently, more than half the people living with hepatitis C in the U.S. are unaware of their infection. Until more people are tested, informed of their disease status, and linked to curative treatment, the nation will be fighting a losing effort to eliminate the disease.

The number of new hepatitis C cases continues to increase each year, further impeding the nation’s ability to eliminate the disease. CDC surveillance data released earlier this year shows that in 2016, there were an estimated 41,200 new cases of hepatitis C. Injection drug use, mainly associated with the opioid epidemic, is a driving factor in these increases, with many of the new cases occurring among young, white persons who live in non-urban areas. Since 2010, new cases of hepatitis C have increased by 350%.

"Despite the large prevalence of hepatitis C in the U.S., and the dramatic increases in new cases, Congress and the Administration have yet to commit the necessary resources that states and community organizations need to combat hepatitis C and the infectious disease consequences of the opioid crisis," said Frank Hood, senior policy associate at The AIDS Institute.

The CDC’s viral hepatitis activities are currently funded at only $39 million. This is to address hepatitis A, B, and C, nationwide. While much more is needed, the hepatitis community has been advocating for at least $134 million so the CDC and its grantees can adequately fund viral hepatitis education, prevention, testing, and surveillance activities across the country.
The CDC is advocating for $40 million in funding to implement the recently passed “Eliminating Opioid Related Infectious Diseases Act of 2018”. This proposal would assist state and local governments and others to enhance surveillance systems to track opioid use-related infectious diseases, increase HIV and hepatitis testing and prevention, and improve linkage to HIV and hepatitis treatment and substance use disorder treatment.

The AIDS Institute urges the Administration and Congress to commit the necessary resources to accelerate hepatitis C elimination efforts and fully fund efforts to combat the infectious disease consequences of the opioid crisis.

Liver cancer diagnosis often late among African-American patients

African-American patients presented with more advanced stages of hepatocellular carcinoma and had worse five-year survival rates compared with Caucasian patients, according to a study published in American Journal of Gastroenterology.

“Long-term survival improved over time for Caucasians with HCC, but not for their African-American counterparts resulting in a survival difference between the two ethnic groups, though ethnicity was not a predictor of HCC mortality,” Jacqueline Estevez, MD, from Stanford University Medical Center in California, and colleagues wrote. “Rather it appears that staging of HCC was the most significant factor for survival.”

Estevez and colleagues performed a cohort study of HCC cases and analyzed the matched results of 578 African-American patients and 578 Caucasian patients. Patients were matched by year of HCC diagnosis and study site. Most cases presented between 2007 and 2014 with a median diagnosis year of 2010.

African-American patients were less likely to have cirrhosis (80% vs. 89%; P < .0001) or hepatic decompensation (59% vs. 75%; P < .0001) compared with Caucasian patients.

Read More: https://www.healio.com/hepatology/oncology/news/online/%7B2a098718-03de-4d7d-8d10-36265c298c7c%7D/liver-cancer-diagnosis-often-late-among-african-american-patients
State Medicaid Programs Continue to Expand Access to Hep C
Treatment

Over the past year, 20 states have eliminated fibrosis restrictions to hepatitis C virus (HCV) treatment, an incredible victory for advocates fighting to expand access to lifesaving medications.

The Hepatitis C: State of Medicaid Access Report by the National Viral Hepatitis Roundtable (NVHR) and the Center for Health Law and Policy Innovation (CHLPI) tracks the progress, with researchers saying they are pleased at how much has changed since the launch of their first Hepatitis C: The State of Medicaid Access report in October 2017. According to the findings, 37 states now have no fibrosis restrictions, meaning that patients no longer have to wait until they are sick to access treatment. Nine states have also loosened their sobriety restrictions for Medicaid treatment, and six have scaled back their prescriber restrictions.

“Our collaborative advocacy is working,” the report states. However, both groups say there is still much to be done to further expand access to treatment. For instance, 14 states still require people to have a liver fibrosis score of F2 or higher to access treatment. Twelve states still require patients to be sober for six months before they can be approved for medications, and 33 states still have prescriber restrictions in place, which makes it difficult to access care in rural areas.

In addition to lobbying for Medicaid expansion, advocates are also seeking to eliminate access restrictions in private insurance and state correctional systems, with the goal of one day having open access to treatment for all.

Hepatitis C: State of Medicaid Access report

The National Viral Hepatitis Roundtable (NVHR) and the Center for Health Law and Policy Innovation (CHLPI) share a commitment to ensuring that all individuals living with hepatitis C (HCV) are able to access treatment and get cured from HCV, the deadliest infectious disease in the United States.

We are pleased to report we have seen tremendous success over the last year. Since the launch of the Hepatitis C: The State of Medicaid Access report in October 2017:

20 states have eliminated their fibrosis restrictions - 37 states total now have no fibrosis restrictions
9 have loosened their sobriety restrictions
6 have scaled back their prescriber restrictions.

However, there is still more work to be done as there are far too many unnecessary restrictions in place in Medicaid programs. 14 states still have F2 or greater fibrosis restrictions, 12 states still require 6 months of sobriety and 33 states still have prescriber restrictions in place, which makes access to care and treatment difficult, particularly in rural areas. This of course doesn’t include the access restrictions in private insurance and correctional settings. For a complete copy of the report:
FIBROSIS RESTRICTIONS

2014

2018

No Restrictions
Chronic HCV
F1
F2
F3
F4
Restrictions Unknown*
SOBRIETY RESTRICTIONS

2014

2018

[Map showing soberity restrictions in 2014 and 2018 across the United States.]

Legends:
- No Restrictions
- Screening and Counseling
- Abstain (1 mo.)
- Abstain (3 mos.)
- Abstain (6 mos.)
- Abstain (12 mos.)
- Restrictions Unknown*

[Logos for Center for Health Law and Policy Innovation and National Viral Hepatitis Roundtable]
Eight reports on liver cancer outcomes with HCV, DAA therapy

Patients with hepatitis C have an increased risk for disease progression to cirrhosis and potentially hepatocellular carcinoma. Recent studies have focused on defining liver cancer risks related to HCV progression and the rates of liver cancer after HCV clearance with new direct-acting antivirals.

The following include several recent that refute previous data suggesting that DAA therapy may increase the risk for liver cancer. Rather, researchers have found it more likely that any increased risk for HCC after DAA therapy is linked to baseline risk factors. Additional include data on liver cancer incidence among patients with comorbidities.

**DAAs for HCV do not increase liver cancer recurrence after local- regional therapy.**
https://www.healio.com/hepatology/hepatitis-c/news-online/%7Bab926ee8-c04a-4223-8f01-1ef81777d5f%7D/daas-for-hcv-do-not-increase-liver-cancer-recurrence-after-local-regional-therapy

**Novel score predicts DAA benefit in patients with HCV, decompensated cirrhosis**
https://www.healio.com/hepatology/hepatitis-c/news-online/%7B264231f-5d8a-4d6a-8783-d6f4d054b8c%7D/novel-score-predicts-daa-efficacy-in-patients-with-hcv-decompensated-cirrhosis

**DAA therapy improves HCV-related liver transplantation outcomes**

**HCV liver cancer resection outcomes similar in patients with diabetes**
https://www.healio.com/hepatology/hepatitis-c/news-online/%7B72c198cb-eed5-4754-9949-b1cfd29565e7%7D/hcv-liver-cancer-resection-outcomes-similar-in-patients-with-diabetes

**Liver cancer incidence after HCV therapy linked to risk factors, not treatment**
https://www.healio.com/hepatology/hepatitis-c/news-online/%7Be33049e8-2b8e-47f5-ba1e-6ad01e1e88b8%7D/liver-cancer-incidence-after-hcv-therapy-linked-to-risk-factors-not-treatment

**HCC rates after interferon-free HCV treatment linked to baseline risk factors**

**Fewer HCC cases from HCV clearance improves quality of life, cost savings**
https://www.healio.com/hepatology/hepatitis-c/news-online/%7B894d3c60-713e-4992-be2d-b52d3cde7b89%7D/fewer-hcc-cases-from-hcv-clearance-improves-quality-of-life-cost-savings
Unrestricted DAA access improves HCV treatment uptake among PWIDs

Data from Australia’s annual bio-behavioral surveillance of people who inject drugs attending needle syringe programs between 2015 and 2017 showed a significant increase in hepatitis C treatment uptake and decrease in viremic prevalence, especially among older patients and those with a history of opioid substitution therapy.

“Australia implemented unrestricted subsidized access to [direct-acting antiviral (DAA)] therapy in March 2016, ensuring that all adults with chronic HCV were eligible for DAA therapy irrespective of liver disease stage and ongoing drug use,” Jenny Iverson, PhD, from the University of New South Wales in Australia, and colleagues wrote. “The initial DAA uptake in Australia, including the high coverage of people with HCV-related cirrhosis, has laid a solid foundation for achieving the WHO elimination goals.”

Iversen and colleagues gathered data from the Australian Needle Syringe Program Survey to examine the impact of DAA access among a national sample of PWIDs.

The study sample included 2,046 survey participants from 2015, 1,995 participants from 2016, and 2,380 participants from 2017 whom the researchers deemed eligible from their anti-HCV results.

Excluding patients with spontaneous clearance, HCV treatment initiation increased from 10% in 2015 to 41% in 2017 (P < .001). Treatment-induced clearance increased from 4% in 2015, to 17% in 2016, to 31% in 2017 (P < .001). HCV viremic prevalence declined from 43% in 2015, to 32% in 2016, to 25% in 2017 (P < .001). Read More: https://www.healio.com/hepatology/hepatitis-c/news/online/%7B67fbe4fe-dce4-45ed-b5e3-ac3a45917a57%7D/unrestricted-daa-access-improves-hcv-treatment-uptake-among-pwids

Response-guided therapy may shorten HCV treatment time by 50%

The use of response-guided therapy, or RGT, reduces effective treatment times by up to 50% in patients with hepatitis C virus infection and could significantly cut costs for expensive direct-acting antiviral therapy, according to research presented at the Liver Meeting 2018 in San Francisco.

“Treatment currently is standardized to be given for a set period of time, usually 12 weeks, rather than being tailored to individual patients,” Scott Cotler, MD, head of Loyola Medicine’s division of hepatology and a professor at Loyola University Chicago Stritch School of Medicine, said in a news release.

In a proof-of-concept pilot study, Cotler and colleagues enrolled patients with HCV and compensated liver disease, genotypes 1 to 6, who were either treatment naive or interferon experienced. Participants were treated with one of four all-oral DAA regimens, and their viral loads were measured at baseline, day 2 and weeks 1, 2 and 4 after beginning treatment.

Cotler and colleagues used mathematical modeling-based RGT when possible at treatment weeks 2 and 4 to project a time to cure. Read More: https://www.healio.com/infectious-disease/hepatitis-c/news/online/%7Bbb74ad24-0cde-48dd-b394-db849278dfe3%7D/response-guided-therapy-may-shorten-hcv-treatment-time-by-50
S5A substitutions affect early HCV treatment failures, retreatment

NS5A resistance-associated substitutions at several positions, including Y93, may hold information about DAA treatment response, according to data presented at The Liver Meeting 2018.

Masayuki Kurosaki, MD, of the Department of Gastroenterology and Hepatology at Musashino Red Cross Hospital, Tokyo, Japan, suggested that in addition to suboptimal results to the first-generation DAA combination of Daklinza (daclatasvir/DCV, Bristol-Myers Squibb) and Sunvepra (asunaprevir/ASV, Bristol-Myers Squibb), early data showed that the Y93 RAS was associated with lower treatment response.

“The aim of this study was to evaluate the prevalence and specific pattern of NS5A RAS in patients who failed prior DCV/ASV,” Kurosaki said. “Also, to evaluate the impact of RAS on the efficacy of retreatment by Harvoni [sofosbuvir/ledipasvir, Gilead].”

The nationwide study included 876 patients who failed daclatasvir/asunaprevir therapy and 1,068 who were DAA-naive. Additionally, 257 patients were retreated with ledipasvir/sofosbuvir. Patients from 83 regional centers in Japan were included.

Read More:  https://www.healio.com/hepatology/hepatitis-c/news/online/%7bf537f709-5711-4f94-a3d0-ceb2b64e468c%7d/ns5a-substitutions-affect-early-hcv-treatment-failures-retreatment

Another human case of rat hepatitis reported, surprising researchers

Researchers said Wednesday they have found a second patient in Hong Kong who contracted a strain of hepatitis carried by rats, in what appears to be the first known human cases in the world. The finding surprised the researchers, though it wasn't immediately clear whether there were significant implications for human health.

"Because the rat ... strain is very different from the human strain, people think it wouldn't be able to jump to humans," said Siddharth Sridhar, one of the principal researchers at Hong Kong University. "This was a clinical discovery."

The first case came out in September. Researchers confirmed a 56-year-old man had a hepatitis E strain previously known only in rats in Vietnam. Doctors later found he had a strain of hepatitis that was "highly divergent" from other strains found in humans, BBC News reported.

The second case was found after blood samples from more than 70 hepatitis E patients were tested.

A 70-year-old woman with a compromised immune system was found to have been infected with the hepatitis strain, the Hong Kong Health Department said Wednesday in an emailed response to questions.

Reminder:  HEPATITIS LEGISLATION UPDATE

Mandatory hepatitis C tests for all pregnant women approved by Kentucky lawmakers

Because of legislation passed by the General Assembly in April 2018, effective July 1, 2018- all pregnant women in Kentucky will be tested for the dangerous liver disease hepatitis C.

Infants born to HCV-positive mothers should be tested for HCV infection with an HCV RNA test at 2 months of age or older (at a routine well-child visit), or HCV antibody testing can be done at 18 months of age (HCV antibody testing should be delayed until 18 months of age to avoid detecting maternal antibody).

The Kentucky Department for Public Health recommends the use of quantitative HCV RNA tests at 2 months of age or older to assess whether HCV was transmitted to the infant from the HCV-positive mother. See the EPID 394 Form at the end of this newsletter, which should be completed and faxed to 502-564-4760. Should you have questions, please contact Kathy Sanders at the KY AVHPC Program, 502-564-3261 ext. 4236 or email Kathy.sanders@Ky.gov.

HEPATITIS B CORNER:

USPSTF Activities on Screening for Hepatitis B Virus Infection in Non-pregnant Adolescents and Adults – Sign up for email list to stay informed

Dear Colleague,

On November 29, 2018 the USPSTF posted a draft research plan on screening for hepatitis B virus infection in non-pregnant adolescents and adults on our Web site. The draft research plan is available for review and public comment from November 29, 2018 through January 2, 2019. You are receiving this email because you and members of your organization may wish to provide feedback on this draft research plan and receive updates on this topic. If you haven’t already, I strongly encourage you and your colleagues to sign up for the USPSTF email list to get alerts on public comment opportunities on this and other Task Force topics. Alerts will also be sent when final materials are posted or published, including the release of final recommendation statements. Signing up for the USPSTF email list ensures that you never miss a Task Force topic update.

Task Force recommendations are improved when groups who are knowledgeable about particular topics share their expertise. We solicit outside input to ensure that final recommendations are relevant and useful to health professionals, patients, and family members. To learn more about the Task Force, visit the About the USPSTF page.

Together, we can work to improve the health of all Americans.
KENTUCKY HEPATITIS IN THE NEWS:

Preliminary data from a new study presented this week at The Liver Meeting® – held by the American Association for the Study of Liver Diseases – found that universal screening of pregnant women at risk for hepatitis C virus (commonly called HCV) infection is a more efficient and cost-effective diagnostic approach than risk-based screening.

HCV infection cases have spiked among pregnant women in recent years (due, in large part, to the opioid epidemic). The CDC and the American College of Obstetricians and Gynecologists currently recommend risk-based screening, and universal screening is recommended by AASLD and the Infectious Diseases Society of America in their HCV Guidance.

“Approximately 50 percent of those infected with HCV do not know they’re infected. Diagnosis is the first step in linkage to care,” says Michelle Rose, MBA, infectious disease manager, Population Health, for Norton Healthcare and the study’s co-author. “Research suggests that most infants acquire HCV infection during the delivery process. Pregnant women should be made aware the infection can be transmitted to their infant.” Rose goes on to explain that with the effectiveness of new direct-acting antiviral drugs at a 95 to 98 percent cure rate for treatment-naïve patients, eradication of the infection is possible.

In HCV screening, a positive HCV antibody test result is confirmed with HCV RNA PCR testing. This study’s co-authors set out to compare the cost-effectiveness of the two testing methods at their institution, Norton Healthcare in Louisville, Ky. They conducted a retrospective analysis of risk-based screening from May 1, 2014 through Dec. 31, 2015, and a prospective analysis of universal screening from May 1, 2016 through Dec. 31, 2017. Testing practices included the proportion of positive screens, and the researchers performed confirmatory tests between the two periods. The goal was to analyze the cost-effectiveness of universal screening.

The researchers collected data on 19,452 pregnant women who were patients at their hospital from 2014 to 2017. They found that universal screening did not increase the likelihood of a positive HCV antibody test, but it was associated with an increased likelihood of the patient receiving a confirmatory RNA result. While the increased cost of universal screening is $308 per patient, it results in an incremental cost-effectiveness ratio of $18,139 per identified active infection gained, or $4,662 per quality-adjusted life year gained. This figure, according to the researchers, is below the willingness-to-pay threshold for cost-effectiveness.

BACKGROUND

Hepatitis C has become a major public health problem within the last decade. Hepatitis C virus (HCV) related complications (end-stage liver disease, liver cancer, and death) have been increasing in the U.S. and, in addition, the state of Kentucky is at the center of the rural opioid epidemic associated with dramatic increases in HCV transmission. As new medications have made the treatment of hepatitis C highly effective, well tolerated, and fast, the national perspective on HCV has shifted toward disease elimination. WHO has set goals of HCV elimination defined as 90% reduction in new cases of chronic hepatitis C, a 65% reduction in hepatitis C deaths, and treatment of 80% of eligible people with hepatitis C infections by 2030. With significant interstate variance of HCV prevalence, incidence, and treatment, we may need individualized state approaches on how to manage HCV burden.

AIM

To predict the number of HCV infected individuals as well as rates of decompensated cirrhosis, HCC, and liver-related deaths in the state of Kentucky under standard and aggressive treatment conditions.

METHODS

We utilized an HCV disease progression model to predict the number of HCV infected individuals as well as rates of decompensated cirrhosis, HCC, and liver-related deaths in the state of Kentucky through 2030 under two scenarios1: Scenario (1) Current screening, linkage to care, and treatment rates with treatment of fibrosis ≥ F2; Scenario (2) Expand treatment to all fibrosis stages. Expand diagnosis and treatment and maintain higher treatment rates. Reduce new infections by 90% by 2030. Model inputs for Kentucky include: HCV prevalence extrapolated from 2003-2010 NHANES data (49,100 untreated patients); HCV incidence based on CDC reports of acute cases (2.7/100,000 in 2015, which is over 3 times higher than the US rate); HCV treatment rates based on published data and expert feedback.

RESULTS Continued.

Table 3: Scenario 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>2015</th>
<th>2017</th>
<th>2018</th>
<th>2020</th>
<th>2022</th>
<th>2025</th>
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<td>Treated Age</td>
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<td>SVR</td>
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</table>

Figure 4: Scenario 2

We compared two HCV management scenarios for the state of Kentucky to determine their potential of achieving 2030 WHO targets of having 80% of HCV patients treated, and reducing HCV related mortality by 65%. 

- Scenario (1) Assuming an unchanged high rate of HCV transmission secondary to an ongoing opioid epidemic, ongoing insurance restrictions for treatment approval (fibrosis, illicit drug use) resulting in declining rates of treatment of patients with advanced fibrosis, a declining rate of new diagnoses related to a declining number of non-identified patients in the baby boomer age cohort, the total number of HCV infected patients would remain largely unchanged, and the HCV mortality would drop by only about 20%. 
- Scenario (2) Assuming a declining rate of HCV transmission secondary to the implementation of effective measures to curtail the opioid epidemic, moderate increase of HCV treatment rate secondary to removal of insurance restrictions, all resulting in declining rates of new HCV infections and new diagnoses, the total number of HCV infected patients and the HCV related mortality would drop by about 65% each.

SUMMARY and CONCLUSION

In conclusion, a multifaceted approach going beyond both scenarios will be required to meet WHO goals for disease elimination. The implementations of effective measures to increase screening, linkage to care, treatment uptake and completion, as well as prevention efforts including clean needle exchange programs, public education and treatment of high risk patient populations are urgently needed to overcome the epidemiological challenges facing our rural state and put Kentucky on a path to planned elimination of HCV infection.
Chronic Hepatitis C: Closing the Gap Towards Eradication

Screening Young Adults vs. Baby Boomers

Michelle Rose, MBA1; John Myers, PhD MSPH2; Scott Duncan, MD MHA1; Michael Smith, MD MSC1; and Claudia Espinosa, MD MSC1

1) (Pediatric) Infectious Diseases, Norton Healthcare, Louisville, KY; 2) Pediatric, University of Louisville; (Pediatric) Infectious Diseases, University of Louisville; (Pediatric) Infectious Diseases, Duke University, Durham, NC

Background

• Kentucky has the second highest rate in the of hepatitis C virus (HCV) infection in the US.
• High rates are directly linked to the opioid and injection drug use (IDU) epidemic, which started around the year 2000.
• Sharing syringes and other drug paraphernalia significantly increases the likelihood of contracting HCV through IDU.
• White young adults living in rural areas have been disproportionately affected by the IDU epidemic.
• About 50% of infected individuals are unaware of their HCV status.

The CDC only recommends universal HCV screening in persons born between 1945-1965 (baby boomers) with screening on other populations only based on exposures, behaviors, or co-morbid conditions.

• With the introduction of curative Direct Acting Antivirals (DAA), eradication of HCV is now possible.
• Increased identification of younger HCV positive individuals is the first step towards eradication of HCV infection.

Methods

• Design: A prospective, observational study design was employed.
• Inclusion criteria: Patients 13 years of age and older seen in the primary care, hospital, and emergency department settings at a large urban-based healthcare organization, located in an area with a high prevalence of intravenous (IV) drug use were screened for HCV between 1 May 2016 to 31 December 2017.
• Primary Outcome: Presence of HCV antibody with auto retest to quantitative PCR if antibody is detected.
• Data analysis: Descriptive analyses followed by multivariable logistic regression to identify risk factors associations amongst three age groups:
  1. general adult population, ages 18-52 years; and
  2. baby boomers ages 53-73 years; and
  3. elderly age >74 years were performed.

Results

Table 1. Patient characteristics stratified by age group.

<table>
<thead>
<tr>
<th>Categorical Variable</th>
<th>Baby Boomers 53-73 Years Old</th>
<th>General Adult 18-53 Years Old</th>
<th>Elderly 73+ Years Old</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race</td>
<td>White 33,055 (83.5%)</td>
<td>12,345 (89.9%)</td>
<td>129 (20.6%)</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>Black 4,989 (12.6%)</td>
<td>4,792 (20.7%)</td>
<td>119 (15.5%)</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>Other 1,453 (3.8%)</td>
<td>1,292 (4.8%)</td>
<td>35 (3.0%)</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>397 (1.1%)</td>
<td>992 (1.1%)</td>
<td>19 (1.0%)</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>Age Group</td>
<td>Early 17,180 (46.2%)</td>
<td>4,482 (22.9%)</td>
<td>245 (47.4%)</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>Race</td>
<td>White 22,939 (58.1%)</td>
<td>5,537 (39.2%)</td>
<td>870 (87.4%)</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>Black 1,803 (42.5%)</td>
<td>1,292 (32.7%)</td>
<td>119 (12.6%)</td>
<td>0.4</td>
<td></td>
</tr>
<tr>
<td>Other 498 (1.3%)</td>
<td>492 (1.5%)</td>
<td>26 (2.0%)</td>
<td>0.01</td>
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</tr>
<tr>
<td>Race Group</td>
<td>Early 452 (70.2%)</td>
<td>752 (69.5%)</td>
<td>81 (11.8%)</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>Continuous Variable</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>53.5 (12.4)</td>
<td>47.7 (10.9)</td>
<td>69.8 (8.5)</td>
<td>&lt;0.001***</td>
</tr>
</tbody>
</table>

Figure 1. Rate of AB positive and RNA positive for Hepatitis C stratified by age group.

Table 2. Logistic regression in which AB+ was made of function of studied variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>OR (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Group</td>
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<tr>
<td>Baby Boomers</td>
<td>Ref</td>
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</tr>
<tr>
<td>General Adult</td>
<td>4.5</td>
<td>(4.2-4.8)</td>
</tr>
<tr>
<td>Elderly</td>
<td>0.7</td>
<td>(0.4-1.1)</td>
</tr>
<tr>
<td>Male</td>
<td>1.6</td>
<td>(1.4-1.8)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1.7</td>
<td>(1.4-2.1)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>Ref</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>1.0</td>
<td>(0.8-1.3)</td>
</tr>
<tr>
<td>Other</td>
<td>1.4</td>
<td>(1.0-1.6)</td>
</tr>
<tr>
<td>Insurance</td>
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<tr>
<td>Public</td>
<td>Ref</td>
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<tr>
<td>Private</td>
<td>1.1</td>
<td>(0.7-1.5)</td>
</tr>
<tr>
<td>None</td>
<td>2.2</td>
<td>(1.7-2.6)</td>
</tr>
</tbody>
</table>

Table 3. Logistic regression in which RNA+ was made of function of studied variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>OR (95% CI)</th>
<th>p-value</th>
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<tbody>
<tr>
<td>Age Group</td>
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<td></td>
</tr>
<tr>
<td>Baby Boomers</td>
<td>Ref</td>
<td></td>
</tr>
<tr>
<td>General Adult</td>
<td>2.9</td>
<td>(2.2-3.9)</td>
</tr>
<tr>
<td>Elderly</td>
<td>3.5</td>
<td>(2.9-4.1)</td>
</tr>
</tbody>
</table>

Results

• General adults [adults aged 18-52 years] were more likely to be non-White (31.1% vs. 16.2% and 19.4%, p<0.001) Hispanic (3.2% vs. 1.0% and 0.9%, p<0.001) females (77.1% vs. 55.9% and 52.6%, p<0.001), when compared to baby boomers [adults aged 53-73] and the elderly [adults aged 74 years or more].
• General adults were less likely to be publicly insured (29.2% vs. 58.1% and 97.4%, p<0.001), but more likely to be IV drug users (98.3% vs. 70.2% vs. 31.8%, p<0.001). Both, the AB positive rate was greater (7.2% vs. 3.5% and 3.6%, p<0.01) as well as the RNA positive rate (4.9% vs. 1.7% and 1.5%, p<0.001) among the general adults when compared with baby boomers and the elderly.
• After adjustment for studied variables, the general adult population was at increased odds of having an RNA positive test (OR=4.4, 95% CI 3.7-5.0, p<0.001).
• The general adult population had increased odds of an AB positive (OR=2.9, 95% CI 2.2-3.9, p<0.001), when compared to baby boomers.
• Being male (OR=0.5, 95% CI 0.4-0.6, p<0.001), Hispanic (OR=2.1, 95% CI 1.8-2.9, p<0.001), other race (OR=0.5, 95% CI 0.3-0.6, p<0.001), IV drug user (OR=3.4, 95% CI 2.9-4.1, p<0.001), and having no insurance (OR=1.8 95% CI 1.5-2.2, p<0.001) impacted the odds of an AB positive result.
• Similarly, being male (OR=0.6, 95% CI 0.4-0.8, p<0.001), Hispanic (OR=1.7, 95% CI 1.4-2.1, p<0.001), other race (OR=0.4, 95% CI 0.1-0.6, p<0.001), an IV drug user (OR=4.7, 95% CI 4.2-5.3, p<0.001), and having no insurance (OR=2.2, 95% CI 1.7-2.6, p<0.001) impacted the odds of an HCV RNA PCR positive result.

Conclusions

• HCV infection now occurs across the life span and should not be viewed as a predominately a baby boomer disease.
• With possible shifts in social determinants of HCV incidence, HCV seems to infect the general population the greatest.
• This phenomenon holds consistent when adjusting for variables known to be associated with HCV such as race, ethnicity, gender, insurance status and IV drug use.
• Belonging to the general adult age group independently impacts an individual’s odds of having an AB and/or RNA positive result.

Discussion

• Efforts should be targeted to increase screening in younger cohorts as HCV is more prevalent in that group age.
• In areas affected by the injection drug use and opioid epidemic, revision of screening recommendations will decrease the gap towards elimination of HCV.
• Universal screening will also help de-stigmatize this infection.
• The efficacy of new DAA’s at 95-98% cure-rate for treatment-naive patients, which includes most younger patients, makes eradication possible.
• Cost-efficiency studies will help inform policy makers of the best strategies to reduce transmission and increase linkage to care as next steps towards closing the gap in elimination of HCV infection.

Disclosure

Support for HIV/HCV/HBV screening and linkage to care was provided through a grant from Gilead Sciences, Inc’s FOCUS (Frontlines of Communities in the United States) program. FOCUS funding supports HIV, HCV, and HBV screening and linkage to the first medical appointment after diagnosis. Clinical expertise and data analysis were supported by the University of Louisville, School of Medicine, Department of Pediatrics.
Register Now!

**KHAMP**
Kentucky Hepatitis Academic Mentorship Program

**HEP C: KNOW MORE**

Join us at Kentucky's KHAMP training
Tuesday, January 15th, 2019
8:00am - 5:00pm
UK Center of Excellence in Rural Health
750 Morton Blvd.
Room 214, Bailey- Stumbo Building
Hazard, KY

To register, go to: [https://krha.wildapricot.org/event-3092669](https://krha.wildapricot.org/event-3092669)

Experts in Viral Hepatitis will discuss HCV management, treatment and standard of care.
The target audience is primary healthcare professionals - Physicians, Physician Assistants, and APRN's. Selected KHAMP Scholars will engage in dialogue and learn successes and best practices on successful hepatitis C prevention, treatment and care strategies.

For more information, contact:
Kathyj.sanders@ky.gov, 502-564-3261 or Frances.feltner@uky.edu, 606-439-3557.
Hepatitis C Testing & Reporting: 
Perinatal, Newborn Infants, and 
Children Aged Five Years or Less

Effective July 1, 2018:
Mandatory hepatitis C tests for all pregnant women. 
Healthcare providers are required to report:

- All HCV-positive pregnant women;
- All infants born to HCV-positive women; and
- All HCV-positive infants and children aged 5 years or less seen in birthing hospitals, medical practices and clinics.

Infants born to HCV-positive mothers should be tested for HCV infection with an HCV RNA test at 2 months of age or older (at a routine well-child visit), or HCV antibody testing can be done at 18 months of age (HCV antibody testing should be delayed until 18 months of age to avoid detecting maternal antibody).

The Kentucky Department for Public Health recommends the use of quantitative HCV RNA tests at 2 months of age or older to assess whether HCV was transmitted to the infant from the HCV-positive mother.

Fax forms to (502) 564-4760
Viral Hepatitis Prevention Program Staff:

Kathy Sanders, RN, MSN
Adult Viral Hepatitis Prevention Program Coordinator 502-564-3261, ext. 4236
KathyJ.Sanders@ky.gov

Amanda Wilburn, MPH
Epidemiologist and
Viral Hepatitis Surveillance Coordinator
Amanda.Wilburn@ky.gov

Deborah Bolton-Plucknett, RN
Perinatal Hepatitis B Prevention Program Coordinator 502-564-4478, ext. 4259
Deb.Bolton-Plucknett@ky.gov
**Kentucky Reportable Disease Form**

Department for Public Health, Division of Epidemiology and Health Planning
275 East Main St., Mailstop HS2E-A
Frankfort, KY 40621-0001

**Hepatitis Infection in Pregnant Women or Child (aged five years or less)**

Report HBV electronically in NEDSS or by fax using EPID 394. Report HCV electronically or by fax using EPID 394.

Fax reports to 502-564-4760

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**NEWBORN INFANT BORN TO MOTHER WITH HBV/HCV or CHILD AGED 5 AND UNDER WITH HBV/HCV**

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<th>Infant/Child: Last Name</th>
<th>First</th>
<th>M.I.</th>
<th>Date of Birth</th>
<th>Gender</th>
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<th>Female</th>
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<th>Yes</th>
<th>No</th>
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<th>HBV vaccination given at birth:</th>
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<td>State</td>
<td>Zip</td>
<td>County of Residence</td>
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</tbody>
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**PREGNANT/ POST PARTUM MOTHER INFORMATION**

| Current Legal Last Name: | First | M.I. | Maiden | Is Patient Pregnant? | Yes | No | Unknown | Is Patient Post-Partum? | Yes | No | Unknown | Mother's Medical Record # |           |       |            |
|-------------------------|-------|------|--------|---------------------|-----|----|--------|------------------------|-----|----|--------|----------------------------|-------|-------|            |
| Address                 | City  | State| Zip    | Ethnic Origin | Race: | Non-His. | Birth weight: | Social Security # | Name of Physician/Hospital for Delivery: | Address: |       |            |
| County:                 | History of Incarceration: | Yes | No | Not known |                |       |     |            |                                      |       |       |            |

---

**WOMEN/ POST PARTUM OR CHILD LABORATORY INFORMATION**

<table>
<thead>
<tr>
<th>Hepatitis/Markers</th>
<th>Results</th>
<th>Date of test</th>
<th>Viral Load (If applicable)</th>
<th>Name of Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>HBsAg</td>
<td>Pos</td>
<td>Neg</td>
<td>Unknown</td>
<td>/</td>
</tr>
<tr>
<td>IgM anti-HBc</td>
<td>Pos</td>
<td>Neg</td>
<td>Unknown</td>
<td>/</td>
</tr>
<tr>
<td>HBeAg</td>
<td>Pos</td>
<td>Neg</td>
<td>Unknown</td>
<td>/</td>
</tr>
<tr>
<td>IgM anti-HAV</td>
<td>Pos</td>
<td>Neg</td>
<td>Unknown</td>
<td>/</td>
</tr>
<tr>
<td>HCV Antibody</td>
<td>Pos</td>
<td>Neg</td>
<td>Unknown</td>
<td>/</td>
</tr>
<tr>
<td>HCV RNA Confirmation</td>
<td>Pos</td>
<td>Neg</td>
<td>Unknown</td>
<td>/</td>
</tr>
</tbody>
</table>

---

**SERUM AMINOTRANSFERASE LEVELS**

<table>
<thead>
<tr>
<th>Mother or Child</th>
<th>Reference</th>
<th>Date of test</th>
<th>Name of Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td>AST (SGOT)</td>
<td>U/L</td>
<td>U/L</td>
<td>/ /</td>
</tr>
<tr>
<td>ALT (SGPT)</td>
<td>U/L</td>
<td>U/L</td>
<td>/ /</td>
</tr>
</tbody>
</table>

---

**Mother: Hepatitis Risk Factors:**

| IV Drug Use | Yes | No | Unknown | Intranasal Drug Use | Yes | No | Unknown | Tattoos | Yes | No | Unknown |
| STI History | Yes | No | Unknown | HIV                | Yes | No | Unknown | Foreign Born? Country: |       |     |            |
| Multiple Sex Partners | Yes | No | Unknown | HCV Contact Exposure | Yes | No | Unknown |                   |       |     |            |

---

**Child: Hepatitis Risk Factors:**

| Mother HBV Pos | Yes | No | Unknown | HBV Contact Exposure | Yes | No | Unknown | Foreign Born? Country: |       |     |            |
| Mother HCV Pos | Yes | No | Unknown | HCV Contact Exposure | Yes | No | Unknown |                   |       |     |            |

---

**Mother Or Child Vaccination History:**

| Hepatitis A vaccination history: | Yes | No | Unknown | Refused | Date Given: | / / |
| Hepatitis B Vaccination history: | Yes | No | Unknown | Refused | If yes, how many doses | 1 2 3 | Dates completed: | / / |
| For infants born to mothers with HBV, was HBIG given: | Yes | No | Unknown | Date Given: | / / |

- Race: W-White B-Black A-Asian AI-American Indian or Alaska Native PI-Pacific Islander
- **HCV Antibody should not be performed at birth, due to presence of maternal antibodies. Wait until at least 18 months of age**
- ***HCV RNA Confirmation is recommended for infants born to mothers with HCV infection. KY DPH recommends HCV RNA Confirmation at 2 month or 4 month well child visit.***

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**Note:** If exhibiting signs and symptoms of HCV, report using the EPID 200
# Kentucky Reportable Disease Form

**Department for Public Health**  
**Division of Epidemiology and Health Planning**  
275 East Main St., Mailstop HS2E-A  
Frankfort, KY 40621-0001

Fax or Mail the Completed Form to the Local Health Department

## DEMOGRAPHIC DATA

<table>
<thead>
<tr>
<th>Patient’s Last Name</th>
<th>First</th>
<th>M.I.</th>
<th>Date of Birth</th>
<th>Age</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>/ /</td>
<td></td>
<td>M/F/Unk.</td>
</tr>
<tr>
<td>Address</td>
<td>City</td>
<td>State</td>
<td>ZIP Code</td>
<td>County of Residence</td>
<td></td>
</tr>
<tr>
<td>Phone Number</td>
<td>Patient ID Number</td>
<td>Ethnic Origin</td>
<td>Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hisp.</td>
<td>Non-Hisp.</td>
<td>W</td>
<td>B</td>
</tr>
</tbody>
</table>

## DISEASE INFORMATION

<table>
<thead>
<tr>
<th>Disease/Organism</th>
<th>Date of Onset</th>
<th>Date of Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>/ /</td>
<td>/ /</td>
</tr>
</tbody>
</table>

List Symptoms/Comments

<table>
<thead>
<tr>
<th>Highest Temperature</th>
<th>Days of Diarrhea</th>
</tr>
</thead>
</table>

Hospitalized?  
Yes  No

<table>
<thead>
<tr>
<th>Admission Date</th>
<th>Discharge Date</th>
<th>Died?</th>
</tr>
</thead>
<tbody>
<tr>
<td>/ /</td>
<td>/ /</td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hospitalized?</th>
<th>Admission Date</th>
<th>Discharge Date</th>
<th>Died?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>/ /</td>
<td>/ /</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Hospital Name:

Is Patient Pregnant?  
Yes  No

School/Daycare Associated?  
Yes  No

Name of School/Daycare:

Outbreak Associated?  
Yes  No

Food Handler?  
Yes  No

Person or Agency Completing form:

Name:  
Agency:

Attending Physician:

Name:

Address:  
Address:

Phone:  
Date of Report: / /

Phone:

## LABORATORY INFORMATION

<table>
<thead>
<tr>
<th>Date</th>
<th>Name or Type of Test</th>
<th>Name of Laboratory</th>
<th>Specimen Source</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## ADDITIONAL INFORMATION FOR SEXUALLY TRANSMITTED DISEASES ONLY

Disease:

<table>
<thead>
<tr>
<th>Syphilis</th>
<th>Stage</th>
<th>Disease</th>
<th>Site: (Check all that apply)</th>
<th>Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Gonorhea</td>
<td>Genital, uncomplicated</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chlamydia</td>
<td>Pharyngeal</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chancroid</td>
<td>Anorectal</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other</td>
<td>Ophthalmic</td>
<td>Penicillin</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date of Spec. Collection</th>
<th>Laboratory Name</th>
<th>Type of Test</th>
<th>Results</th>
<th>Treatment Date</th>
<th>Medication</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If syphilis, was previous treatment given for this infection?  
Yes  No

If yes, give approximate date and place
HIV/AIDS Cases:
Forms other than the EPID 200 are required for reporting HIV/AIDS cases in children and adults. Obtain those forms by calling 866-510-0008, or those forms can be downloaded from the DPH Website, http://chfs.ky.gov/dph/epi/HIVAIDS/surveillance.htm. Contact information for telephoning case reports and addresses for mailing case reports are on that Website. Reports for HIV/AIDS cases should not be faxed.

Sexually Transmitted Disease Cases:
Confidential reports for STD cases can be submitted on the EPID 200 form. Fax a completed form for STD Cases, only, to 502-564-5715. Or, mail to:

Animal Bite Reports:
Healthcare providers and healthcare facilities should fax reports about animal bites directly to the Local Health Department (LHD) serving the county in which the patient resides. Please do not fax reports about animal bites to the Kentucky Department for Public Health.

Reporting All Other Diseases and Conditions Listed in 902 KAR 2:020 (Reportable Disease Surveillance) or in any Public Health Advisory (PHA) Issued per that KAR that Requires Using the EPID 200 Form for Reporting:
Reports, depending upon the notification classification described in 902 KAR 2:020 or in a PHA, shall be submitted by phone, by electronic submission, or by fax or mail submission on an EPID 200 form to the Local Health Department (LHD) serving the county in which the patient resides.
If submitted by telephone, an electronic or fax submission shall be made within one business day to the LHD serving the county in which the patient resides.

Kentucky Department for Public Health in Frankfort
Telephone 502-564-3418 or 888-9REPORT (888-973-7678)
SECURE FAX 502-696-3803