



harm reduction
COALITION

Hepatitis C Cure

"The Invisible Epidemic"

**Iris House 8th Annual Face of
AIDS Summit**

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Hepatitis C Basics

- A virus that can cause chronic (long-term) infection leading to serious liver damage
- Transmitted through blood-to-blood contact
- **No vaccine**
- Most people with hepatitis C have not been diagnosed
- Treatment can cure (eliminate the virus) but not 100% effective
- Usually leads to chronic infection
- Leading cause of cirrhosis, liver failure, liver cancer, and liver transplant
- Mostly asymptomatic

Hepatitis C - associated liver disease now causes more deaths than HIV – and hepatitis C co-infection is a leading cause of death among people living with HIV.

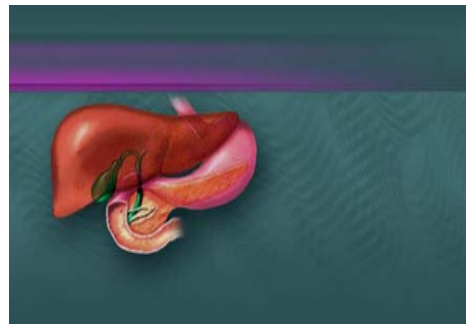
Hepatitis C Transmission:

Main modes of transmission:

- Injection drug use
- Blood transfusion before 1992 in the US
- Perinatal transmission rate 3-5%
- Sexual transmission low; conflicting data in literature

Liver's Functions

- Largest organ except for skin
- Weighs approximately 3 lbs
- 1.5 quarts blood flow through every minute
- Under ribcage
- Serves 500 functions.
- Can lose 3/4 of its cells before reduction in functioning is noticeable
- The only solid organ that can regenerate itself



HCV Replication: Inflammation and Fibrosis

- HCV infects & reproduces inside liver cells (“hepatocytes”)
- Stimulates the body’s immune response
- Results in the death of infected cells; stimulates production of chemicals that cause inflammation
- Over time inflammation and cell death result in the accumulation of scar tissue = “fibrosis”
- Scar tissue can accumulate over years to produce cirrhosis.

HCV Diagnosis

Antibody test (EIA or RIBA)

- Indicates HCV exposure
- If positive, could mean:
 - Current infection
 - Exposed but infection has resolved
 - False positive

Nucleic Acid Test (NAT), e.g. PCR

- Indicates presence of virus in body, i.e. current infection
- Fewer labs perform this test
- \$\$\$

If positive, both are reportable to NYCDOH

HCV Surveillance at NYCDOHMH

- Laboratories and providers are required by the Health Code to report HCV to DOHMH
 - Labs report electronically and usually report
 - Providers usually do not report
 - Basic patient demographics, laboratory, health care facility and provider information are required
- If positive, both are reportable to NYCDOH

HCV NYC Surveillance

In 2011:

- 93,295 reports of HCV
- 8,716 **newly** reported patients

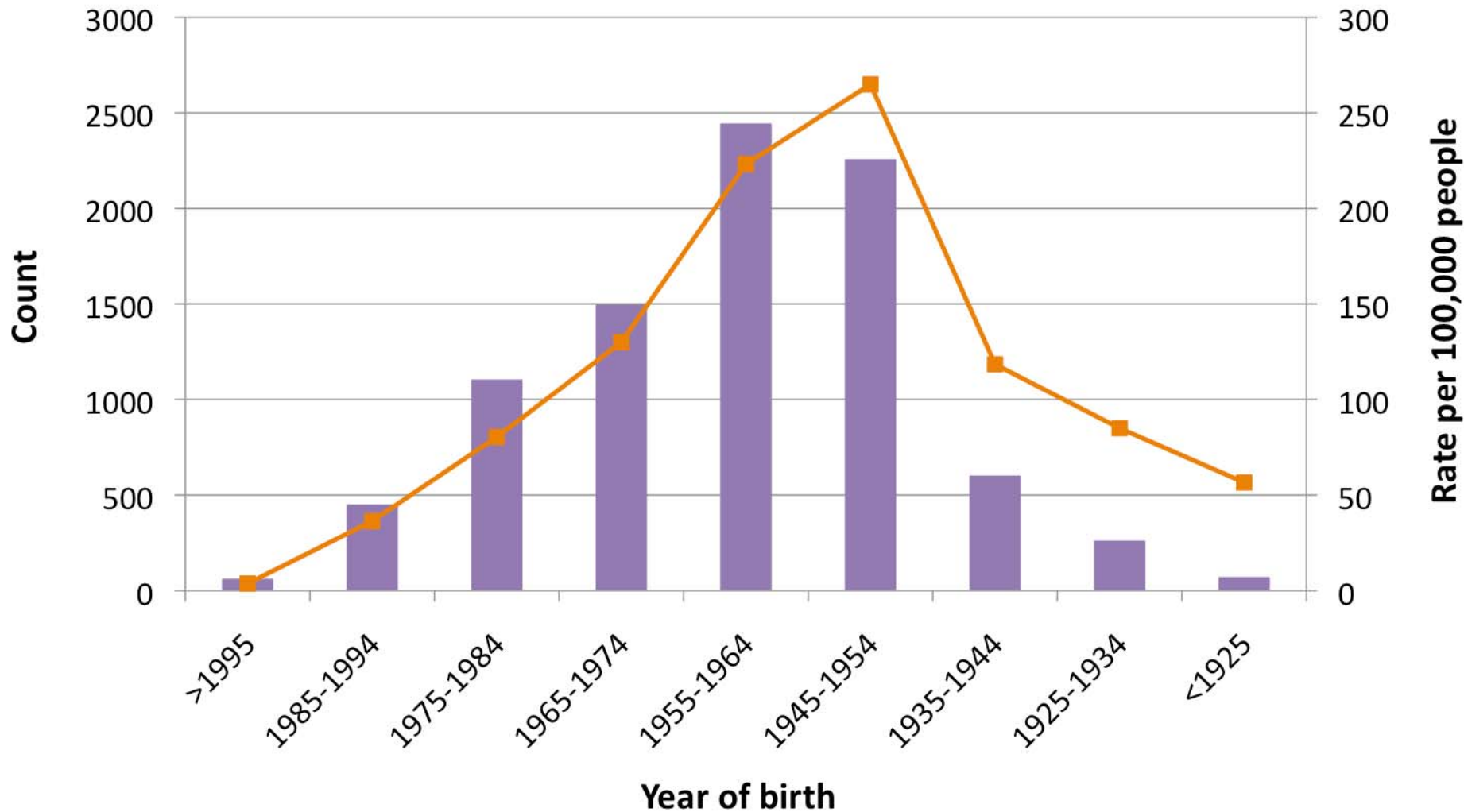
The remaining 84,579 are duplicates:

- Providers and laboratories reporting same positive test
- Repeated testing
 - Patients getting EIA test with follow-up PCR and genotype
 - Patients getting multiple PCR tests (e.g., when on treatment)
 - Patients getting multiple EIA tests (inappropriate)

2001 NYC Newly Reported Patients by Gender

Sex	Number	%	Rate per 100,000
Male	5563	64	130
Female	3148	36	81
Unknown	5	0	n/a

Newly Reported Patients with HCV by Year of Birth



Newly Reported Patients with HCV by Boro of Residence

Borough of Residence	Number	%	Rate per 100,000
Bronx	2102	24	152
Brooklyn	2267	26	90
Manhattan	1773	20	112
Queens	1569	18	70
Staten Island	393	4	84
Unknown	612	7	n/a

Evolution of HCV Treatment

- Early: Interferon monotherapy
- 1998: Interferon + Ribavirin
- 2002: Pegylated-Interferon + Ribavirin
- 2011: Pegylated-Interferon + Ribavirin + Protease Inhibitor
- The Future: 2nd generation Protease Inhibitors, Polymerase Inhibitors, NS5A Inhibitors, Others

HCV Treatment Current Standard of Care

Pegulated Interferon – a cytokine (chemical messenger) manufactured by the body (many types: *alpha*, *beta*, *gamma*, *lambda*, etc.)

- Coordinates immune response
- Inhibits viral replication in cells

Ribavirin – nucleoside analog

- Mechanism of action not fully understood
- May work by interfering with viral replication process

HCV protease inhibitor (new)

- class of antiviral drugs that are widely used to treat HIV/AIDS and HCV

Get Down & Stay Down!

Successful HCV treatment rapidly—and completely —suppresses the virus, & keeps it suppressed throughout the course of treatment (12-72 weeks)



Successful HCV Treatment

HCV treatment works in 2 ways:

- killing off infected cells &
- blocking viral replication, so uninfected cells don't become infected

Pegylated Interferon + Ribavirin

HCV mono-infection

- Genotype 1: 48 - 72 weeks of treatment
- Genotype 2, 3: 24 weeks of treatment

Pegylated Interferon + Ribavirin

HIV/HCV co-infection

- All Genotypes: 48-72 weeks of treatment

Treatment Issues

Challenges: complex regimens + many side effects & contraindications
+ up to 12 months + drug interactions + potential drug resistance
+ high cost = *bottleneck*

- **Fatigue (62-64%)**
- **Depression (29-31%)**
- **Loss of appetite (29-32%)**
- **Muscle aches (48-56%)**
- **Joint aches (34%)**
- **Difficulty sleeping (40%)**
- **Irritability (34-35%)**
- **Nausea (36-43%)**
- **Headaches (58-62%)**
- **Difficulty Concentrating (16-17%)**
- **Skin Rash (22-24%)**
- **Hair Loss (29-36%)**

New HCV Treatment Meds

- Coming soon (2014/2015): interferon-free/all oral treatment regimens – 3-6 months, high cure rates, more manageable side effects
- A hepatitis C drug combination from Gilead and BMS cured all patients in a trial, demonstrating the success of a cocktail that may never be approved.
- Oral once or twice a day daily pill

Who Should Get Tested for HCV?

- Support legislation for NYS/NYC Hospitals or clinics to offer HCV screenings to people born 1945 – 1965 A01286/S02750
- Current or former injection drug users, including those who injected only once many years ago
- Recipients of clotting factor concentrates made before 1987, when more advanced methods for manufacturing those products were developed
- Recipients of blood transfusions or solid organ transplants before July 1992, when better testing of blood donors became available

Who Should Get Tested for HCV?

- Chronic hemodialysis patients
- Persons with known exposures to HCV, such as
 - health care workers after needlesticks involving HCV-positive blood
 - recipients of blood or organs from a donor who tested HCV-positive
- Persons with HIV infection
- Children born to HCV-positive mothers

Approximately 3.2 million persons in the United States have chronic HCV infection. Infection is most prevalent among those born during 1945–1965, the majority of whom were likely infected during the 1970s and 1980s when rates were highest.



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Other resources:

HHS Viral Hepatitis Action Plan

<http://www.hhs.gov/ash/initiatives/hepatitis/index.html>

National Viral Hepatitis Roundtable

<http://nvhr.org/>

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