



## HEPATITIS WEB STUDY

# Acute Hepatitis C Virus Infection: Epidemiology, Clinical Features, and Diagnosis

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# Diagnosis

# Diagnosis of Acute Hepatitis C

- Acute HCV = first 6 months of infection
- Diagnosis of acute HCV can be challenging:
  - Most cases asymptomatic
  - No reliable or specific IgM-based HCV antibody test

# Acute Hepatitis C: 2012 CDC Case Definition

## Acute Hepatitis C: 2012 Case Definition

### Clinical Presentation

An acute illness consistent with acute viral hepatitis

**AND**

Jaundice/dark urine **or** ALT greater than 400 IU/L

### Laboratory Criteria for Diagnosis

**Meets 1 of the following 3 criteria:**

- HCV EIA positive, **OR**
- HCV RIBA positive, **OR**
- HCV RNA positive

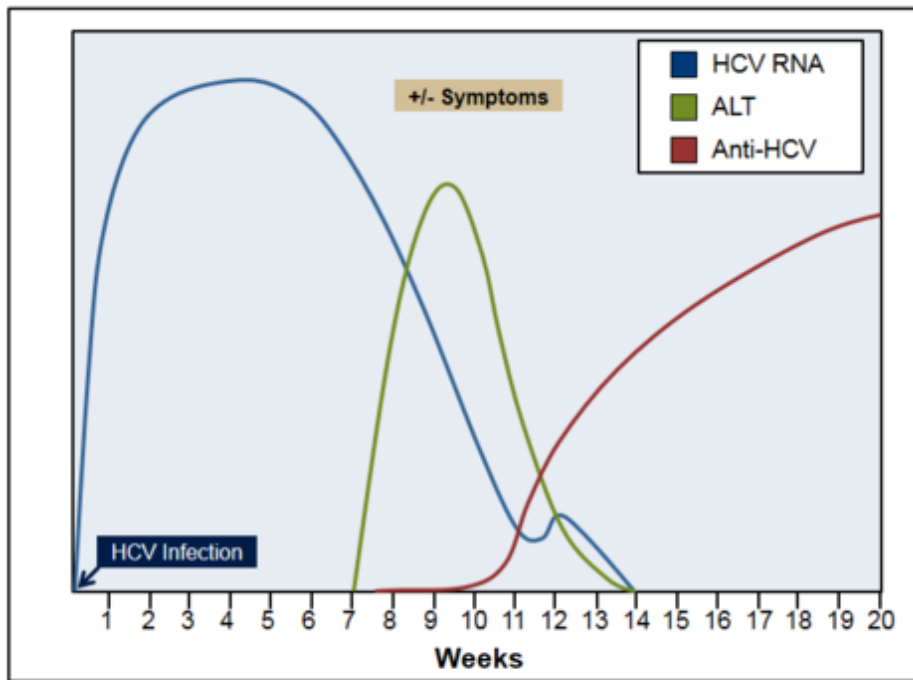
**AND**

- Negative HAV IgM **AND** negative HBV IgM anti-HBc

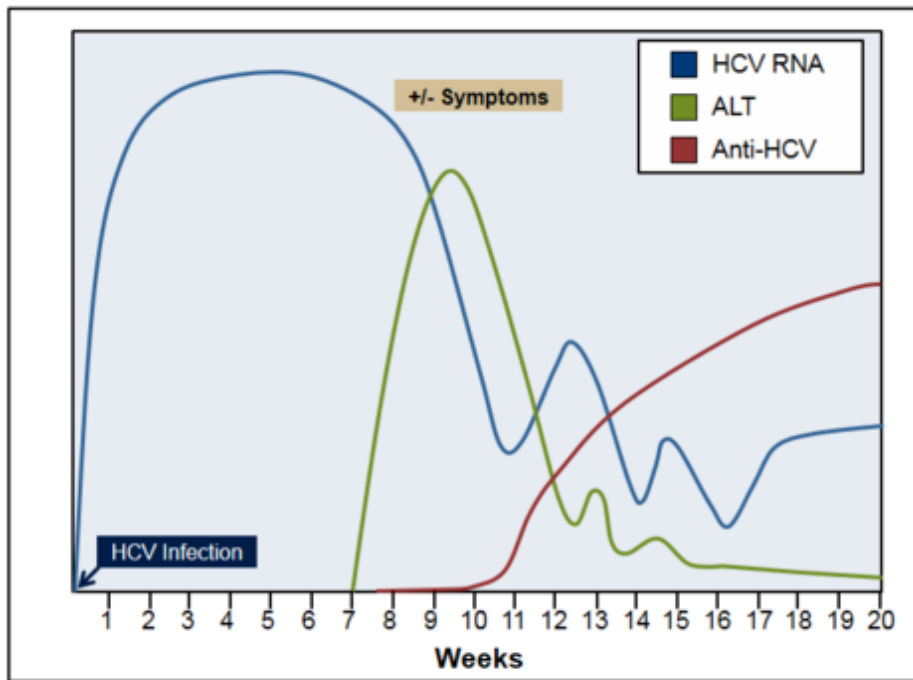
# Diagnosis of Acute Hepatitis C

- **Hepatitis C RNA** – quantitative (or qualitative) assay
  - Can detect HCV RNA as early as 1 week from time of infection
  - Most sensitive early test
  - Levels can fluctuate widely in acute infection
  - Best to use assay with low limit of detection (<10-15 IU/mL)
- **Serum ALT**
  - Elevated in range of 400-800 U/L for symptomatic patients
  - Any new elevation (typically >7X ULN)
- **Hepatitis C antibody** (by standard EIA)
  - Lags behind HCV RNA
  - In most patients, detected x 2-4 months from time of infection
  - Not as sensitive: only 50-70% acutely infected are HCV Ab (+)
  - Helpful if seroconversion has occurred

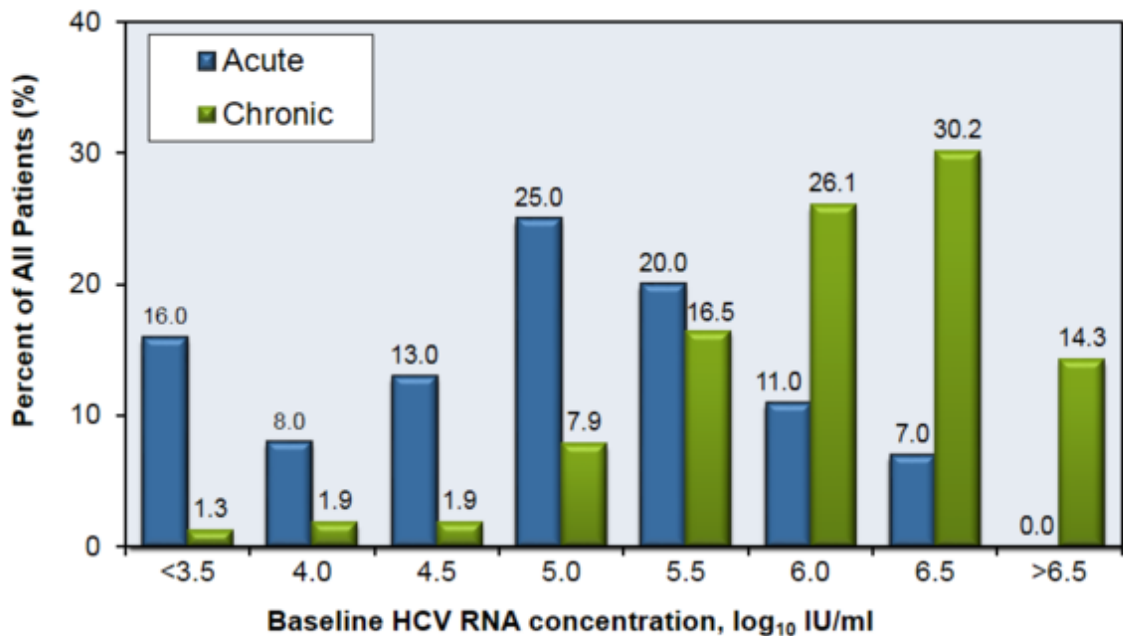
# Spontaneous Clearance of HCV after Acute Infection



# HCV Persistence after Acute Infection



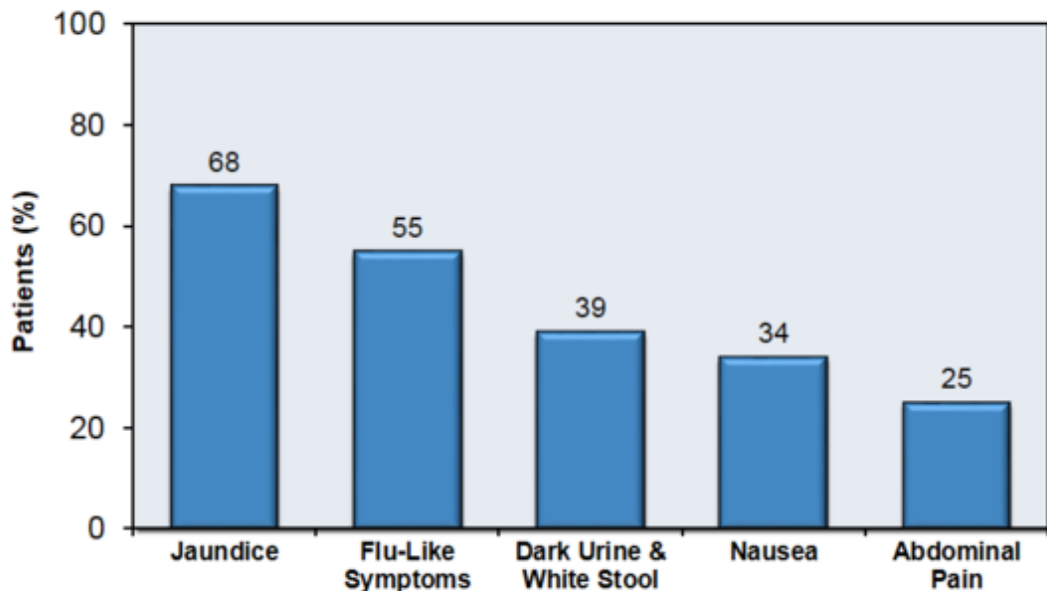
## Distribution of HCV RNA Levels for Acute versus Chronic HCV



# Clinical Features & Natural History

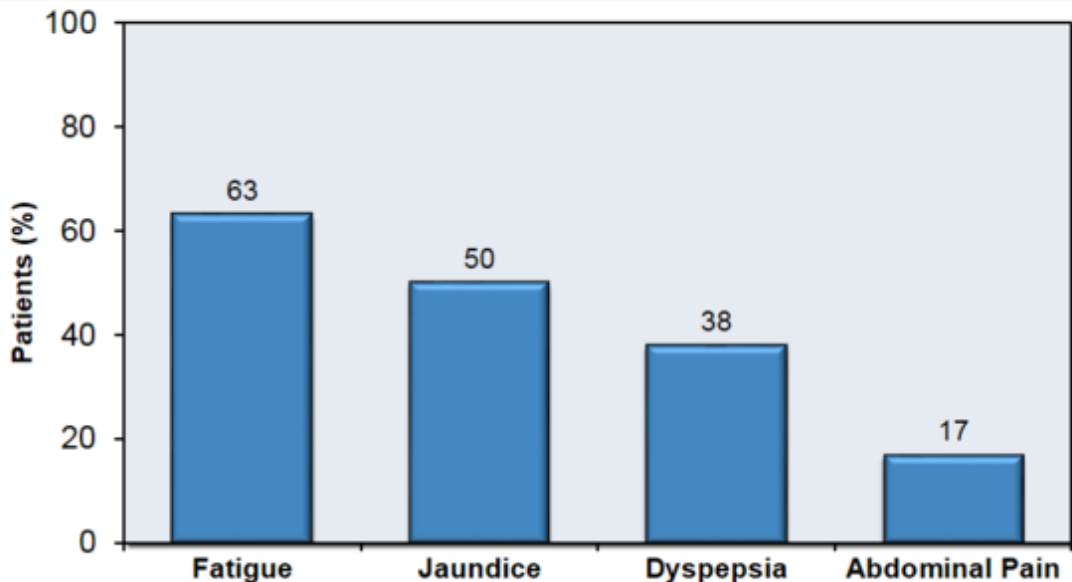
# Acute Hepatitis C

## Clinical Features Among 51 Patients with Acute HCV Infection



# Acute Hepatitis C

Clinical Features Among 24 Patients with Acute HCV Infection



# Disclosure Information

- No disclosures to report

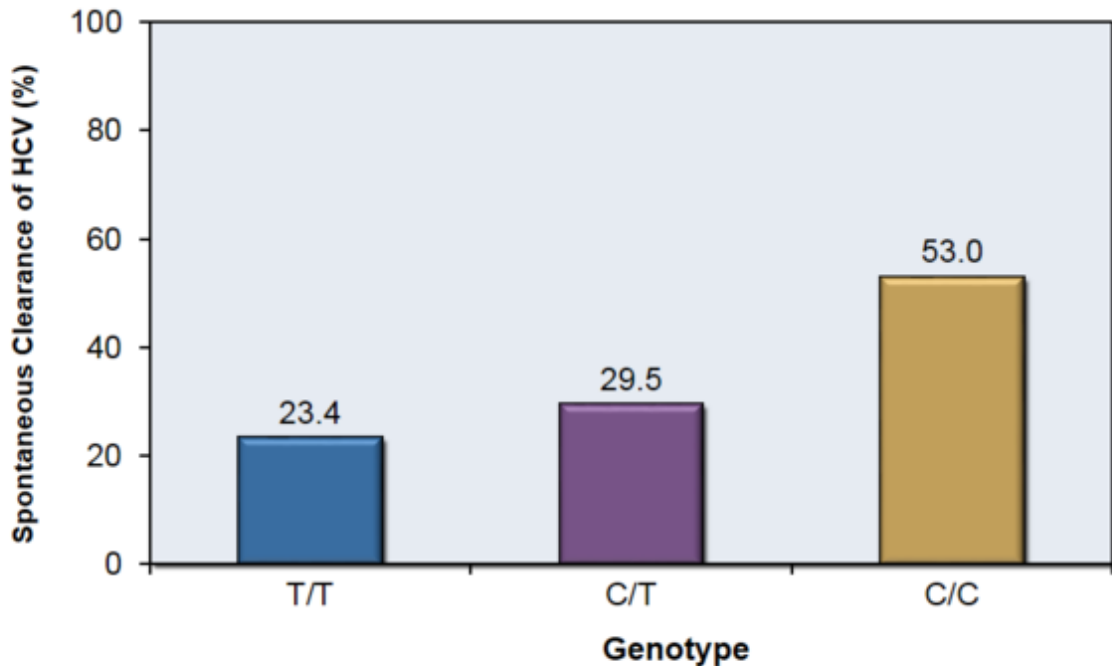
# Natural History of Acute HCV Infection

- Incubation period = 4-14 weeks
  - Most with acute HCV are asymptomatic or minimally symptomatic
  - Only 10-20% have a distinct clinical illness
- If clinical illness occurs, hepatitis is rarely fulminant
  - ALT typically 400-1000 U/L
  - Bilirubin rarely >12 mg/dl
- Two possible outcomes:
  - Spontaneous clearance: estimated at 20-25% (may be lower in HIV-infected)
  - Persistent chronic HCV infection.

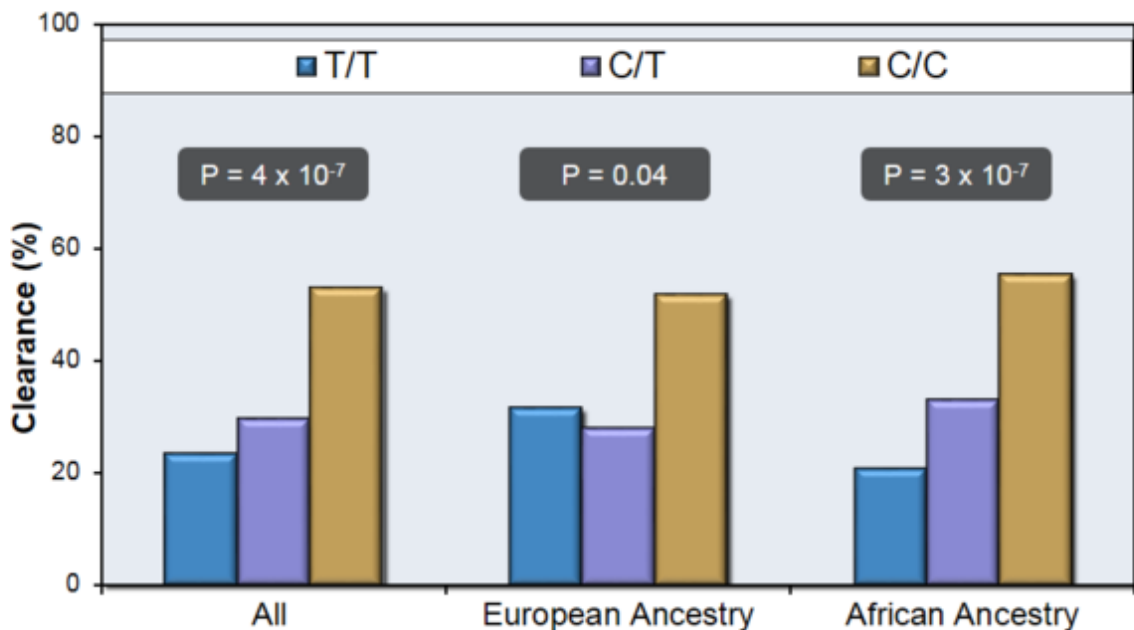
## Predictors of Spontaneous HCV Clearance

- Lower peak HCV RNA levels
- Rapid early decline in HCV viral level
- High ALT
- Presence of jaundice
- Female gender
- Younger age
- Non-black race
- Coinfection with chronic hep B (+HBsAg)
- *IL28B* CC homozygous genotype

## Genetic Variation in IL28-B and Spontaneous HCV Clearance



## Genetic Variation in IL28-B and Spontaneous HCV Clearance



## Acute Hepatitis C: Summary

- Often a missed diagnosis!
- Contaminated blood exposure is the most common but sexual transmission can occur
- Confirmation of acute hepatitis C can be challenging since minority (10-20%) of patients have clinical symptoms
- HCV RNA, serum ALT and HCV antibody testing remain the cornerstone of acute HCV diagnosis
- Spontaneous clearance can occur in some acutely infected patients but the majority (75%) will go onto chronic infection if untreated.

# End

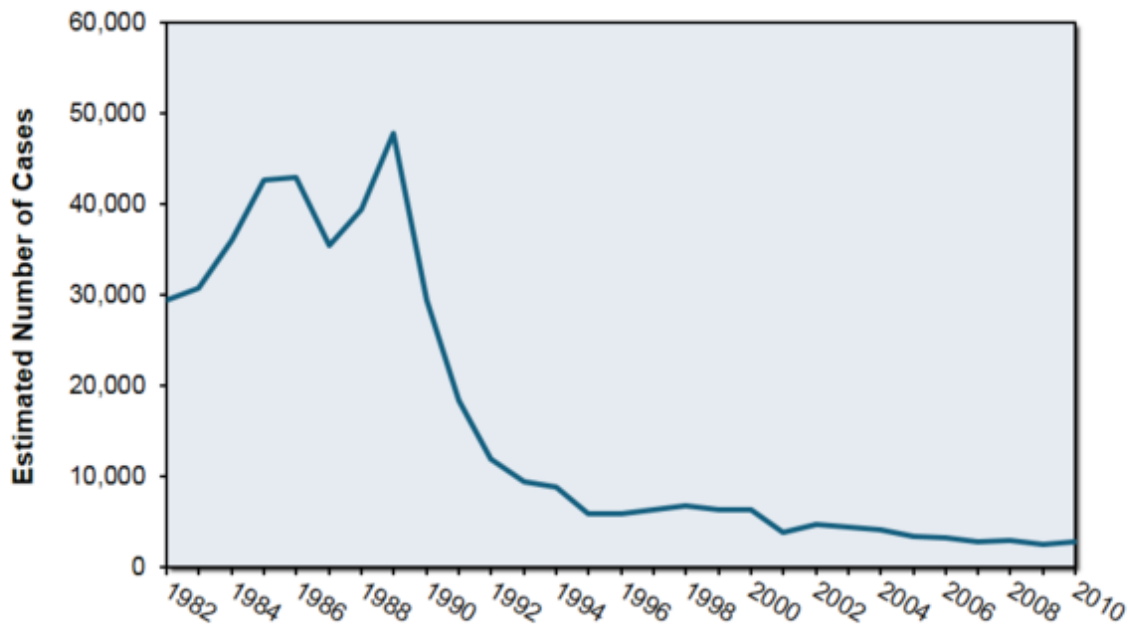


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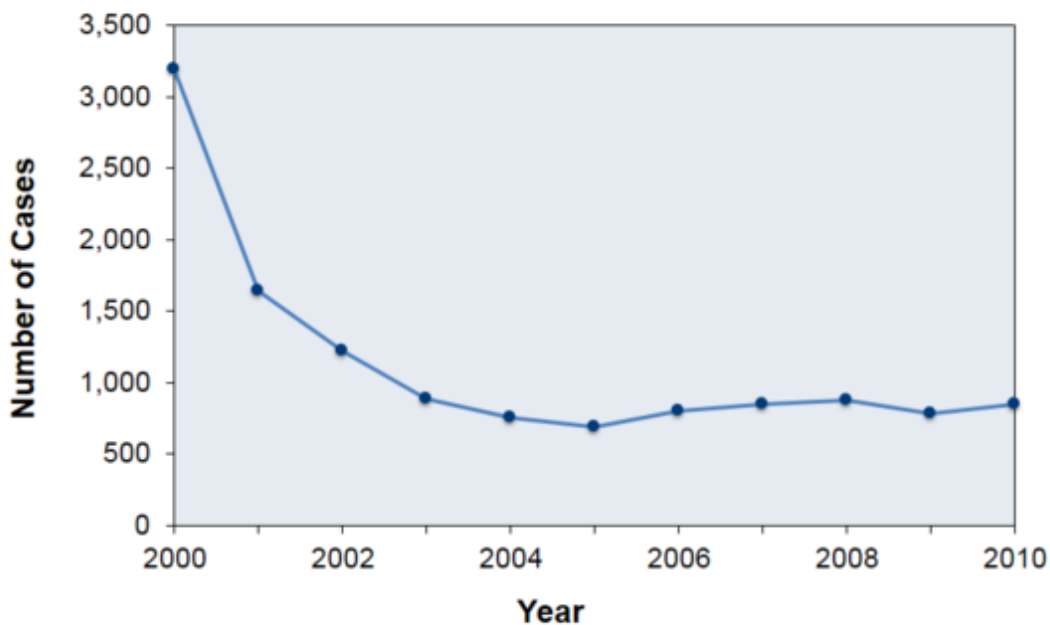
# Acute Hepatitis C: Epidemiology

# Incidence of Acute Hepatitis C, by year United States, 1982-2010



Source: CDC Division of Viral Hepatitis. Statistics and Surveillance.

# Reported Number of Acute HCV Cases United States, 2000-2010



Source: National Notifiable Diseases Surveillance System (NNDSS)

# Hepatitis C

## Incident Cases in 2010

17,000 estimated new HCV  
infections per year in U.S.



2,800 cases with  
symptomatic acute HCV



853 cases of acute HCV  
actually reported

# Rationale for Identifying Patients with Acute HCV

- Provide risk reduction counseling and linkage to care
- Shift dynamics of natural history of HCV disease

# Hepatitis C Transmission

- Bloodborne transmission is the most common route
- Sexual transmission in general population considered rare
  - Among cohort of 895 heterosexual HCV-serodiscordant couples, only 3 transmissions occurred → incidence 0.37/1000 person-years
  - Strain analysis did not support sexual transmission
- Increasing reports of HIV-infected men who have sex with men with sexually-acquired acute HCV infection in Europe, Australia, and U.S.

# List of Potential Hepatitis C Exposures

## Potential Source of Exposure to Hepatitis C Virus

Recent injection drug use

Needle stick injury

Procedures involving potentially reused needles: tattooing, body-piercing, acupuncture

Exposure to re-used sharp objects or re-used vials of injectable materials

Nosocomial exposure to contaminated equipment, or potential direct exposure to blood

High risk sexual practices: fisting, bleeding during sex, use of sharp objects during sex

Sexual contact with a known HCV-infected partner

Sexual contact with known HIV positive partner

Sexual contact with known sexually transmitted infections in patient or their partner

Blood transfusion or unsafe therapeutic procedures during travel in a developing country