Using Electronic Medical Record Decision Support to Increase Testing for Hepatitis C

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Disclosures

• None
Advantages to Routine HCV Testing in Primary Care

- Many patients are already seen at least annually
- Anti-HCV testing can be easily added to routine lab testing (such as cholesterol screening)
- Can efficiently identify the 3 of 100 HCV seropositive baby boomer patients
- De-stigmatizes HCV for patients and providers
BIDMC/CareGroup Experience

• Network of academic hospitals, primary care practices, community health centers that share a common electronic medical record system
  – 5,500 clinicians and ~1.5 million patients

• Implemented a prompt in EMR for a one-time anti-HCV test in all patients born from 1945-1965 who had no prior record of testing, while continuing risk-based testing
  – Went live on June 4, 2013
  – In the first ten months, we tested a total of 20,129 people for HCV
PCP Misconceptions at CareGroup

• Recommendations to test everyone born from 1945 - 1965 means testing too many people and this is too expensive
• There is no need to screen since clinicians can identify people who have clinically significant liver disease by their clinical presentation and will test for HCV at that point
• Patients will die with their HCV, not of it, and a lot of patients will be upset/harmed by this testing in an effort to identify the few who will actually develop significant disease
• There is nothing to do for HCV (if not aware that HCV is potentially curable) or, the treatment is more toxic than the disease
• Everybody with anti-HCV antibody seropositivity has active HCV infection
• There are too many electronic medical records prompts already and any more will overwhelm clinicians
Steps to Implement Birth Cohort HCV Testing

• Core team: Primary Care, Infectious Disease, Hepatology, Database Management, and Clinical Pathology
• Implement a one-time electronic prompt for anti-HCV antibody testing for all patients born from 1945 through 1965 who have no record of HCV antibody testing
• One-page educational tool for providers and one for patients, accessed at point-of-care via linkage to the HCV antibody electronic prompt.
• Email notification sent to 5,500 clinicians who use OMR for patient care
• Hotline, run by a HCV nurse educator based in the Liver Center at BIDMC
  – Answer patient questions about HCV
  – Help facilitate patient referral in the Liver Center and Infectious Diseases Clinic
• Slide deck for presentations to primary care providers about HCV
• Collaboration with Laboratory Services at BIDMC
  – Expand capacity for increased volume of HCV Ab and RNA tests
  – Added language to results page for all positive HCV antibody tests informing clinicians to order an HCV RNA test to determine the presence of active HCV infection
  – Generates a report of all positive HCV antibody tests every two weeks and provide it to the HCV nurse educator. She determines if these patients received appropriate HCV RNA tests, and if HCV RNA is detected, that these patients have been linked into specialty care. If not, a provider will be sent a reminder offering referral services or support if they are doing self-management
Efficiently identify birth cohort 1945-1965:

- Electronic prompt

~1/3 of adults are in 1945-1965 cohort

1,000 adult patients

330 baby boomers

10 HCV antibody positive

7 HCV RNA positive

3 with more advanced fibrosis

4 with mild fibrosis

15%-30% of HCV antibody patients will spontaneously clear

Up to 25% of baby boomers may have cirrhosis

75% of cirrhotic patients are men

Davis, Gastro 2010; 138: 513
**Initial Hepatitis C Testing and Evaluation**

**Who Should Be Tested for Hepatitis C?**

**New: Anyone born between 1945 and 1965 should be tested once, regardless of risk factors**

In addition, patients with the following risk factors:

- Elevated ALT (even intermittently)
- A history of illicit injection drug use or intranasal cocaine use (even once)
- Needle stick or mucosal exposure to blood
- Current sexual partners of HCV infected persons
- Received blood/organs before 1992
- Received clotting factors made before 1987
- Chronic hemodialysis
- Infection with HIV
- Children born to HCV-infected mothers

**Why Test People Born Between 1945-1965?**

- 76% of the ~4 million people with HCV infection in the US are baby boomers
- In the 1945-1965 cohort:
  - All: 1 out of 30
  - Men: 1 out of 23
  - African American men: 1 out of 12
- Up to 75% do not know they have HCV
- 73% of HCV-related deaths are in baby boomers

**What Can Happen to People with Hepatitis C?**

- It is important to identify if patients have cirrhosis
- Patients with cirrhosis are at risk for liver cancer (HCC) and liver decompensation (ascites, variceal bleed, hepatic encephalopathy, jaundice)
- Hepatitis C is curable, and cure reduces the risk of severe complications, even with cirrhosis
- Refer patients to a specialist who has experience treating hepatitis C to see if they need treatment

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**Diagram:**

1. **Hepatitis C Antibody (HCV Ab)**
   - Positive (+)
   - Check HCV RNA (viral load)
   - Positive (+)
   - Hepatitis C infection
   - Evaluation and referral

2. **Hepatitis C Antibody (HCV Ab)**
   - Negative (-)

   **STOP here if no concern for acute infection or severe immunosuppression. If so, check HCV RNA.**

3. **Check HCV RNA (viral load)**
   - Positive (+)

   **These people are NOT chronically infected.**
   - Detectable HCV Ab with negative HCV RNA can occur with spontaneous clearance of infection (about 25% of people exposed to HCV will clear; verify HCV RNA negative in 4 to 6 months) or with treatment of HCV.

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**Counsel Patients with HCV Infection About Reducing Risk of Transmission**

- Do not donate blood, body organs, other tissue, or semen
- Do not share personal items that might have small amounts of blood (toothbrushes, razors, nail-grooming equipment, needles) and cover cuts and wounds
- HCV is not spread by hugging, kissing, food or water, sharing utensils, or casual contact
- If in short term or multiple relationships, use latex condoms. No condom use is recommended for long-term monogamous couples (risk of transmission is very low)

**Initial Management**

- Evaluate alcohol use (CAGE, AUDIT-C) and recommend stopping use
- Vaccinate for hepatitis A and hepatitis B if not previously exposed
- Evaluate sources of support (social, emotional, financial) needed for HCV treatment

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1Example ICD-9 codes for HCV antibody testing:
- V73.89: screening for other specified viral disease
- 790.4: nonspecific elevation of levels of transaminase; use if patient ever had an elevated ALT
Number of HCV Antibody Tests Performed In Four Week Intervals

Beth Israel Deaconess Medical Center, Boston, MA, Quality Outcomes Data, 1/22/14
HCV Antibody Test Volume Increased after EMR Prompt

Boomers

Average = 303 tests/4 weeks

Average = 438 tests/4 weeks

Average = 1192 tests/4 weeks

CDC 1945-1965 testing guidelines

EMR prompt

Beth Israel Deaconess Medical Center, Boston, MA, Quality Outcomes Data, 6/5/14
“HCV Champions” Must Address Multiple Barriers to Implement EMR Prompts for HCV Testing

• Systems barriers:
  – Overloaded IT staff with too many programming demands
  – Lack of uniform EMR use across health systems

• Clinician barriers:
  – “Prompt burn-out”
  – Misunderstanding about HCV

• Patient barriers:
  – Lack of insurance
  – Lack of access to primary care