High Yield and Feasibility of Baby Boomer Birth Cohort HCV Screening in Two Urban, Academic Emergency Departments

James W Galbraith, MD¹; Jordan Morgan, MPH¹; Joel Rodgers, MPH¹; Ricardo Franco, MD²; Pamela Green RN, BSN³; James McCarthy, MD³; Kathleen Hoffman, RN, BSN³; Jenjung Pan, MD⁴

¹ UAB Department of Emergency Medicine
² UAB Department of Medicine, Div. of Infectious Diseases
³ UTHSC – Houston, Department of Emergency Medicine
⁴ UTHSC – Houston, Department of Medicine, Div. of Gastroenterology
Disclosures and Conflicts of Interest

None

Funding

Birmingham – CDC Foundation
Houston – Gilead FOCUS
Chronic HCV infection is an urgent public health challenge, especially for persons born between 1945-1965, “Baby Boomers”

- Account for approximately 75% of HCV infections in the U.S.

Who should get tested for Hepatitis C?

- Anyone who has injected drugs, even just once many years ago
- Anyone with certain medical conditions, such as chronic liver disease and HIV or AIDS
- Anyone who has received donated blood or organs before 1992
- Anyone born from 1945 through 1965
- Anyone with abnormal liver tests or liver disease
- Health and safety workers who have been exposed to blood on the job through a needlestick or injury with a sharp object
- Anyone on hemodialysis
- Anyone born to a mother with Hepatitis C

Disproportionately affected HCV populations have been identified including:

- Non-whites
- Medicaid recipients
- Uninsured

Same populations are known to be disproportionate users of ED care

>50% of Baby Boomers were unaware of their HCV infection

• Persons who were previously unaware of their HCV infection were more likely to:
  – Lack health insurance coverage
  – Lack a usual source of medical care

• Suggests that screening efforts that work through the health care system (i.e., primary care) may not be successful in reaching many HCV infected individuals

Purpose

Describe the early experience with integrated HCV screening of “baby boomers” presenting to two urban academic emergency departments (ED)
University of Texas Health System – Houston Memorial Hermann ED (MHED)

- Level 1 Trauma Center
- >63,000 ED visits / yr.
- Routine HIV Screening program screening >38,000 individuals / yr. between 9 community sites
  - Prevalence of newly diagnosed HIV infection of 0.03% - 0.11%

University of Alabama at Birmingham Emergency Department (UED)

- 51 bed, Level 1 Trauma Center
- >65,000 ED visits / yr.
  - Avg. 12,337 unique “Baby Boomer” visits / yr.
- Routine, integrated opt-out HIV screening program which screens >20,000 individuals / yr.
  - Prevalence of newly diagnosed HIV infection of 0.25%
Eligibility

**Houston**

**Inclusion**
• Persons born between the years of 1945 and 1965
• Medically/surgically stable
• Able to opt-out of HCV screening offering

**Birmingham**

**Inclusion**
• Persons born between the birth years of 1945 and 1965
• Medically/surgically stable
• Able to perform a verbal questionnaire administered by their ED nurse

Additional targeted populations screened, but not reported in this presentation, include:
• Persons who abuse(d) IV drugs
• Newly diagnosed HIV infected persons
• Persons with new symptoms of liver disease
Methods - HCV Test Offering

**Houston**

- HCV antibody assay ordered by EM physicians/residents for eligible patients who are by self-report unaware of their HCV status

**Birmingham**

- HCV antibody assay automated for eligible patients who are by self-report unaware of their HCV status via an electronic opt-out HCV screening questionnaire performed by nursing
Have you ever been tested for Hepatitis C?
- No
- Yes
- Unknown
- Unable to obtain (if unable, then ineligible)

What was the result of the test?
- Negative
- Positive (if positive, then ineligible)
- Don't know/remember

The CDC recommends one-time Hepatitis C screening for all persons born between 1945 and 1965. If you are unaware of your Hepatitis C status, a free and confidential test will be ordered unless you decline. Our rapid Hepatitis C test will not delay your treatment, and results of this test will be delivered before you are discharged.

Testing option
- Acknowledged and eligible
- Ineligible at UED
- Declined
Abbott ARCHITECT Anti-HCV Assay

- Time to first result of 29 minutes
- Random access, non-bracketed controls

**Houston**
- Assay performed once daily
- Confirmation with HCV Viral Load performed by referral physician

**Birmingham**
- Assay performed on demand during ED visit
- Confirmation with HCV Viral Load without genotyping collected on ED visit
Methods – Result Delivery & Linkage to Care

**Houston**

- All HCV testing results recorded in electronic health record

- Patients are sent a letter informing of test results along with counseling and linkage information.

- Patients called within 5 days by RN
  - Assist with referral to Liver Specialist
  - Collect risk information
  - Further counseling

**Birmingham**

- All HCV testing results recorded in electronic health record

- ED physicians disclose results to patients and provide linkage information for HCV antibody positive individuals.

- Patients are called within 7 days by linkage coordinator
  - Assist with referrals to PCP and Liver Specialist
  - Collect risk information
  - Further counseling
HCV Antibody Prevalence by Site

- **Houston**: 9.9% (1421 cases)
- **Birmingham**: 11.1% (1359 cases)
HCV Antibody Prevalence Trends

Birmingham

Week 1: 13.10%
Week 2: 12.90%
Week 3: 12.30%
Week 4: 13.10%
Week 5: 10.80%
Week 6: 9.20%
Week 7: 11%
Week 8: 9.40%
Week 9: 10.00%
Week 10: 11%
Week 11: 10.10%

Houston

Month 1: 11.10%
Month 2: 11%
Month 3: 11.00%
Month 4: 10.80%
Month 5: 9.40%
Month 6: 10.00%
Month 7: 11.30%
Month 8: 9.40%
Month 9: 9.80%
Month 10: 7.60%
HCV Antibody Reactive – Gender Comparison by Site

Female
- Houston: 39.10% (61)
- BHAM: 33.90% (57)

Male
- Houston: 60.90% (95)
- BHAM: 66.10% (111)

Color Legend:
- orange: Houston
- green: BHAM
HCV Antibody Results – Gender (Birmingham)

Female
- Non-Reactive: 717
- Reactive: 57 (7.4%)

Male
- Non-Reactive: 642
- Reactive: 111 (14.7%)

(p = <0.001)
HCV Antibody Reactive - Race Comparison by Site

<table>
<thead>
<tr>
<th>Race</th>
<th>Houston</th>
<th>BHAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>51.3% (80)</td>
<td>61.2% (104)</td>
</tr>
<tr>
<td>White</td>
<td>37.2% (58)</td>
<td>37.1% (63)</td>
</tr>
<tr>
<td>Other</td>
<td>11.5% (18)</td>
<td>1.7% (3)</td>
</tr>
</tbody>
</table>

- Houston
- BHAM
HCV Antibody Results – Race (Birmingham)

- **Other**:
  - Non-Reactive: 25
  - Reactive: 3 (10.7%)

- **Black**:
  - Non-Reactive: 680
  - Reactive: 104 (13.3%)

- **White**:
  - Non-Reactive: 654
  - Reactive: 63 (8.0%)

(p = 0.012)
HCV Antibody Reactive – Insurance Type Comparison by Site

- 63% (both sites)
- 24.3% Private
- 12.8% Medicare
- 37.2% Public / Medicaid
- 25.6% Uninsured
- 34.4% Other
- 1.8% Missing
HCV Antibody Results – Insurance Type (Birmingham)

- **Uninsured**: 271 Non-Reactive, 55 Reactive (16.9%)
- **Public / Medicaid**: 238 Non-Reactive, 48 Reactive (16.8%)
- **Other**: 22 Non-Reactive, 6 Reactive (13.3%)
- **Medicare**: 446 Non-Reactive, 39 Reactive (8.0%)
- **Private**: 359 Non-Reactive, 19 Reactive (5.0%)

(p = <0.001)
The presence of viremia was more likely for males than females (78.8% vs. 52.1%; OR 3.42, 95% CI 1.59 – 7.39)

No significant differences in confirmed HCV viremia when comparing insurance type or race
Challenges to ED HCV Screening

Cost of Screening

Competing priorities of the ED

Linkage to care
  • High uninsured/underinsured rates (63%)
  • Lack of access to primary care services
Outcomes

Both EDs demonstrated high yield and feasibility to perform HCV screening of “baby boomers”

Differing methodologies identified a high prevalence of HCV-antibody positive “baby boomers” (9.9% - 11.1%) who were by self-report unaware of their antibody status

Males, African-Americans, and uninsured / underinsured individuals had disproportionately high antibody prevalence rates
The ED is an important venue for HCV screening of the “baby boomer” birth cohort
Acknowledgements

UAB & Houston Memorial Hospital

- Nursing Staff
- Residents and Physicians
- Laboratory Staff
High Yield and Feasibility of Baby Boomer Birth Cohort HCV Screening in Two Urban, Academic Emergency Departments

James W Galbraith, MD\textsuperscript{1}; Jordan Morgan, MPH\textsuperscript{1}; Joel Rodgers, MPH\textsuperscript{1}; Ricardo Franco, MD\textsuperscript{2}; Pamela Green RN, BSN\textsuperscript{3}; James McCarthy, MD\textsuperscript{3}; Kathleen Hoffman, RN, BSN\textsuperscript{3}; Jenjung Pan, MD\textsuperscript{4}

\textsuperscript{1} UAB Department of Emergency Medicine
\textsuperscript{2} UAB Department of Medicine, Div. of Infectious Diseases
\textsuperscript{3} UTHSC - Houston, Department of Emergency Medicine
\textsuperscript{4} UTHSC – Houston, Department of Medicine, Div. of Gastroenterology
Uninsured HCV+ individuals were more likely to use a hospital emergency room and less likely to use any other type of health care.

\[(9.23 \pm 3.51 \text{ versus } 2.61 \pm 1.42; p < 0.0580)\]

HIV Screening in EDs

Emergency Departments (ED) in the U.S. have been identified as a key health care venue for reaching populations disproportionately affected by HIV who have poor access to health care

- Racial and ethnic minorities
- Uninsured
- Dependent on Medicaid

Under-recognized HCV Infection – Phone Follow-up Interview

BHAM - 45/96 (47%) confirmed HCV RNA+ not reachable by phone

- Not Reachable by Phone
- Confirm New Diagnosis
- State Previously Aware
- Previously Treated or Evaluated for Treatment