Objectives

• Understand hepatitis C virus (HCV) and HIV reporting requirements

• Discuss the limitations of currently available surveillance data

• State best estimates of number of HCV-infected persons and number of co-infected persons nationally and locally
HCV & HIV—Blood Borne Viruses

• Major risk: **Injection drug use**
  – HCV is \( \sim 10 \) times more infectious than HIV through percutaneous blood exposures
  – In almost every setting worldwide, the prevalence of HCV infection among IDUs is \( >50\% \)
  – Among persons who acquired HIV infection from injection drug use, the prevalence of HCV infection approaches 90%

• Also, unsafe tattoos and medical procedures; sharing personal care items
Discovery of Hep C Virus

• 1960-70s: Tests for hepatitis A and B developed

• Yet, many cases of hepatitis remained unexplained
  – “Non-A, non-B hepatitis”

• 1988: Identification of hepatitis C virus (HCV)

• 1992: HCV antibody test widely available
  – Screening of blood products and organs
Disease Reporting Requirements

- AIDS
  - Since 1981

- HIV
  - Since 1999

- HCV
  - Acute cases previously reportable as non-A, non-B
  - Chronic cases since 2002
  - Labs and providers required to report
Incidence Acute Hepatitis C/NANB
United States, 1982-2005

Source: National Notifiable Diseases Surveillance System (NNDSS)
Incidence Acute Hepatitis C/NANB United States, 1982-2005

Source: National Notifiable Diseases Surveillance System (NNDSS)

Chicago records only 7-10 cases of acute HCV each year
HCV Case Estimate: National

- National Health and Nutrition Examination Survey (NHANES)
- Ongoing, population-based U.S. survey
- 1999-2002 (N=15,079)
- Results
  - Estimated 3.2 million persons with chronic HCV
  - 3% of blacks, 1.5% of whites, 1.3% of Mex-Amer
- Limitations
  - Other racial/ethnic groups not represented
  - Does not include incarcerated, homeless, military

HCV Case Estimate: Chicago

22,169 cases in registry through Feb 2008
### Chicago HCV Cases
#### Demographics 2001-2008

<table>
<thead>
<tr>
<th>Sex</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>13272</td>
<td>62</td>
</tr>
<tr>
<td>Female</td>
<td>8074</td>
<td>38</td>
</tr>
</tbody>
</table>

Sex not recorded for 823 (4%) records

<table>
<thead>
<tr>
<th>Age Group</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4 yrs</td>
<td>65</td>
<td>0.3</td>
</tr>
<tr>
<td>5-19</td>
<td>186</td>
<td>0.8</td>
</tr>
<tr>
<td>20-49</td>
<td>10624</td>
<td>49.4</td>
</tr>
<tr>
<td>50-64</td>
<td>8357</td>
<td>38.8</td>
</tr>
<tr>
<td>65+</td>
<td>2295</td>
<td>10.7</td>
</tr>
</tbody>
</table>

Age not recorded for 642 (3%) records
Chicago HCV Cases
Race/Ethnicity 2001-2008

- 65% of records do not contain race/ethnicity information
- Of records with race/ethnicity, blacks make up over half, followed by whites, then Hispanic
Viral Hepatitis Surveillance

- No dedicated funding (federal, state, or local)
  - CDC does fund Adult Viral Hepatitis Prevention Coordinator (AVHPC) position
    - This grant includes the Coordinator’s salary only
    - This grant specifically excludes hepatitis surveillance

- Hep surveillance rolled into all other communicable disease surveillance
  - 60+ other infections/conditions

- Each jurisdiction must develop own database of cases
HIV Surveillance

• Federal funding provided
  – Dedicated health department personnel

• Standardized database (HARS)
  – Permits comparisons across jurisdictions
  – CDC technical assistance provided
  – However, hep C status not a required field

• Prevention funding tied to number of cases
Other HCV Surveillance Barriers

• Complex test results
  – EIA, Signal-to-cut-off ratio, RIBA, PCR

• Majority of cases are laboratory reports only
  – Contain only name, date of birth, and submitting lab or physician
  – Missing race/ethnicity, address, risks
  – Clinicians often don’t report

• Data entry
  – Non-medical personnel
HCV & HIV Database Match

• Performed in 2005

• Goal: Determine number of cases present in both databases in Chicago

• Limitations
  – HIV cases were not name-based
  – Underreporting of HCV cases
HCV & HIV Database Match

• Results
  – 1,150 individuals present in both databases
    • 75% non-Hispanic Black
    • 50% aged 40-49 years
    • 61% had IDU listed as HIV transmission mode
      (compared to ~25% for all Chicago AIDS cases)

~9% of HCV cases had HIV

~3.5% of HIV cases had HCV
Geographical Distribution of Cases

HIV Prevalence Rate, 2006

HCV Prevalence Rate, 2001-08

Address missing or incorrect for 43% of cases
HCV/HIV Co-Infection: National Estimate

- HCV tests performed on stored blood samples from >200 HIV+ patients enrolled in U.S. Adult AIDS Clinical Trial Group

- Results
  - Overall weighted co-infection prevalence: 16%
  - Highest risk (hemophiliac, IDUs): 73%
  - Lower risk (MSM, hetero, HCW): 3.5%

- First attempt to estimate overall co-infection prevalence

HIV Behavioral Surveillance

- Ongoing surveys of populations at high risk for acquiring HIV (MSM, IDU, heterosexuals)

- In 2005, CDPH interviewed 525 IDUs:
  - 70% had no health insurance
  - 26% homeless at time of interview
  - ~6% reported being HIV-positive
  - Only 45% ever had a HCV test
  - Of those tested for HCV, 64% reported testing positive
  - 37% shared needles and 53% shared injection paraphernalia in past year
Conclusions

- Surveillance system for HIV much better developed and funded than system for HCV
- At minimum, >1,100 persons co-infected in Chicago
- Risk for HCV infection among HIV+ population varies widely—depends on mode of transmission