



CENTERS FOR DISEASE
CONTROL AND PREVENTION



*National Center for HIV/AIDS,
Viral Hepatitis, STD, and TB
Prevention: NCHHSTP*

Division of Viral Hepatitis

Viral Hepatitis Surveillance

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Presentation Layout

- Purpose of VH Surveillance in the US
- Surveillance Systems used to Conduct Viral Hepatitis Surveillance
- Est Prevalence of Chronic HBV among Asian Americans
- Select CDC-DVH and Grantee Publications and Reports

Viral Hepatitis Surveillance in the United States

OBJECTIVE:

- Monitor incidence and prevalence infection rates
- Estimate burden of disease
- Identify outbreaks for investigation
- Assess sources of infection & monitor changes in transmission patterns
- Evaluate and guide prevention programs and policies

Surveillance Systems for Viral Hepatitis in the United States



National Notifiable Diseases Surveillance System (NNDSS)

Enhanced Hepatitis Surveillance

National Vital Statistics – Cause of Death Files

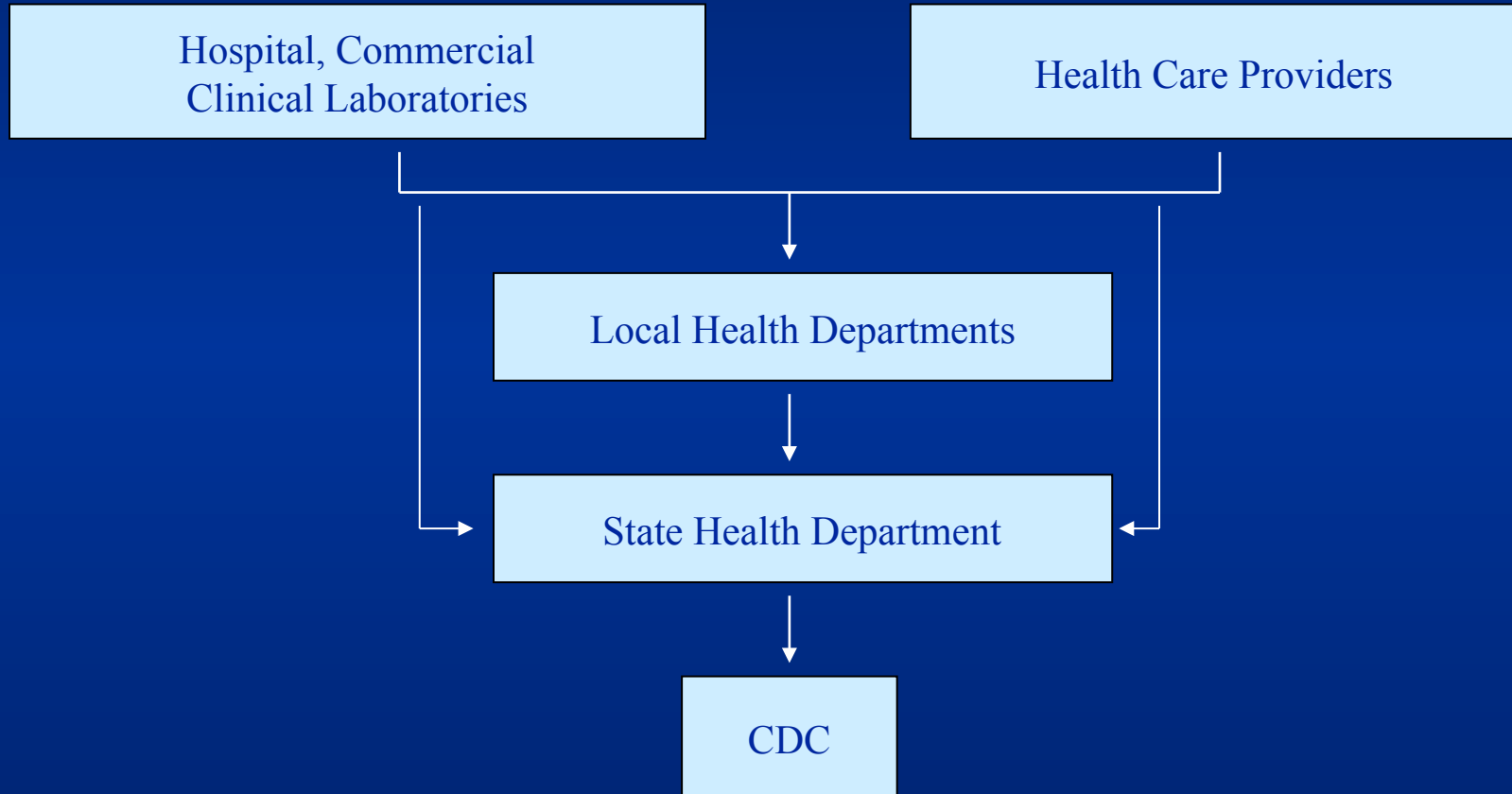
National Health and Nutrition Examination Survey (NHANES)

National Notifiable Diseases Surveillance System (NNDSS)

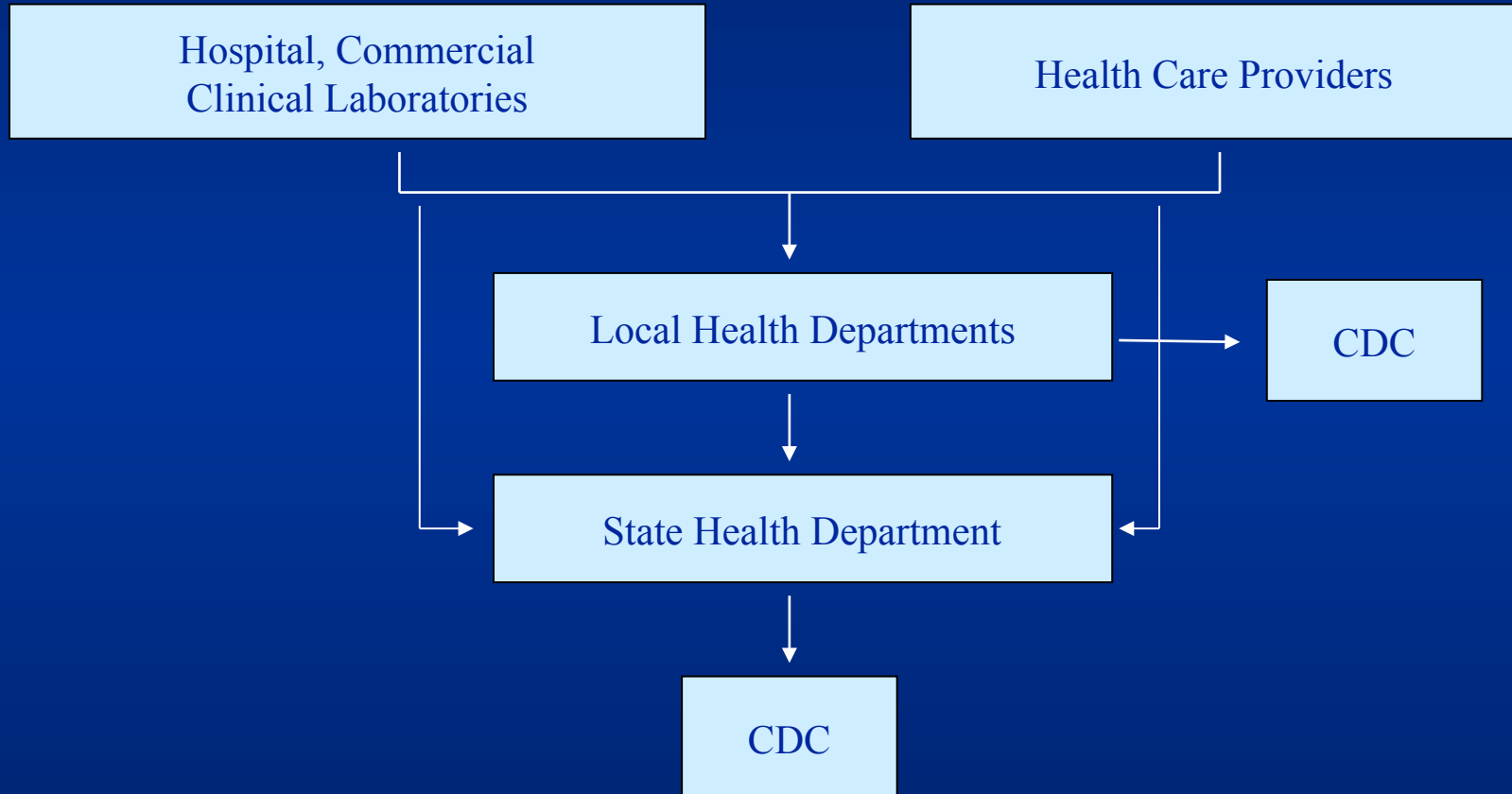
Viral hepatitis among > 70 conditions currently notifiable

- Acute hepatitis A, B and C
- Perinatal hepatitis B infection (1995)
- Chronic hepatitis B and Past or Present C (January 2003)
 - HBV and HCV - 43 states and District of Columbia

NNDSS Data Model



Enhanced Surveillance Data Model



Enhanced Vital Hepatitis Surveillance

- November 2012, CDC funded seven health departments
 - Florida, Massachusetts, Michigan, New York, Washington
 - Philadelphia, San Francisco
- Vision for enhanced surveillance sites
 - Increase capacity to conduct surveillance
 - Improve data quality, completeness, and timeliness
 - Lay ground work for a national viral hepatitis registry
 - Utilize entire CDC case report form to collect enhanced data: demographic, risk factor, serologic testing, immunization status, and possible modes of infection

NHANES Data Collection

- Operated by CDC/NCHS
- Multi-stage probability sample
- Sample size ~ 5,000 to 7,000 per year
- Mobile examination centers
- Oversample of select populations



Prevalence of Chronic HBV in US Households

| Age-adjusted Prevalence of Chronic, 1988-2012 | | | | | | | | | |
|---|--------------------|-----|--------------------|------|--------------------|------|---------------------|---------------------|------------------|
| Characteristic | NHANES (1988–1994) | | NHANES (1999–2006) | | NHANES (2007–2012) | | Trends Analysis | | Prevalence Ratio |
| | Sample Size | % | Sample Size | % | Sample Size | % | Pvalue ₁ | Pvalue ₂ | PR |
| Overall | 21,260 | 0.4 | 29,828 | 0.3 | 22,358 | 0.3 | 0.1753 | 0.2390 | 1.3 (0.9, 2.0) |
| Age, years | | | | | | | | | |
| 6–19 | 5,679 | 0.2 | 12,004 | 0.05 | 6,344 | 0.03 | 0.0565 | 0.1582 | 9.4 (2.1, 41.8) |
| 20–49 | 8,857 | 0.4 | 9,465 | 0.3 | 8,118 | 0.4 | 0.7942 | 0.2372 | 1.1 (0.6, 2.0) |
| ≥ 50 | 6,724 | 0.4 | 8,359 | 0.4 | 7,896 | 0.3 | 0.4862 | 0.9564 | 1.3 (0.6, 2.8) |
| Race/ethnicity | | | | | | | | | |
| Asian American* | | | | | 929 | 3.2 | | | |

Prevalence of Chronic HBV in US Households

| Overall and Age Specific Prevalence of HVC Vaccine Immunity by selected characteristics: NHANES 1988 - 2012 | | | | | |
|---|------------------|---------------------------|------------------|---------------------------|-------------------|
| Characteristic | NHANES 1999–2006 | | NHANES 2007–2012 | | Prevalence Ratio |
| | Sample Size | Prevalence, % (95% CI) | Sample Size | Prevalence, % (95% CI) | PR |
| Overall | 29,828 | 21.9 (21.0, 22.8) | 22,359 | 25.2 (24.2, 26.3) | 1.15 (1.09, 1.22) |
| Race and ethnicity | | | | | |
| Asian American* | | | 929 | 35.6 (31.5, 39.9) | |
| 6–19 | | | 237 | 42.8 (36.1, 49.7) | |
| 20–49 | | | 421 | 40.3 (34.3, 46.6) | |
| ? 50 | | | 271 | 22.6 (18.7, 27.1) | |

Source: Roberts et al. HEPATOLOGY e-Published August 2015

Reported Cases of Chronic HBV

Table 3.4. Reported cases of chronic hepatitis B, by demographic characteristics and laboratory tests

| Category | Massachusetts No. (%) | Michigan No. (%) | New York State† No. (%) | Philadel- phia No. (%) | San Francisco No. (%) | Washing- ton§ No. (%) | Total No. (%) |
|-----------------------|--------------------------|---------------------|-------------------------------|------------------------------|--------------------------|-----------------------------|------------------|
| Total no. cases | 456 | 471 | 647 | 280 | 732 | 170 | 2,756 |
| Race/ethnicity | | | | | | | |
| Asian/Pacific | 177 | 114 | 176 | 98 | 364 | 48 | 977 |
| Islander, NH | 38.8% | 24.2% | 27.2% | 35.0% | 49.7% | 28.2% | 35.4% |
| Black, NH | 80 17.5% | 98 20.8% | 83 12.8% | 52 18.6% | 9 1.2% | 5 2.9% | 327 11.9% |
| White, NH | 46 10.1% | 124 26.3% | 99 15.3% | 14 5.0% | 16 2.2% | 30 17.6% | 329 11.9% |
| Hispanic | 30 6.6% | 7 1.5% | 29 4.5% | 12 4.3% | 0 0.0% | 5 2.9% | 83 3.0% |

Source: 2013 CDC Viral Hepatitis Surveillance Summary

Select CDC VH Surveillance Publications

- Annual surveillance summaries
[//www.cdc.gov/hepatitis/statistics/index.htm](http://www.cdc.gov/hepatitis/statistics/index.htm)
- Prevalence of Chronic Hepatitis B in US Households, 1988 - 2012
Roberts et al. *Hepatology*, Epub 2015 Aug 6.
- Epidemiology of Acute Hepatitis B in the United States from Population-Based Surveillance, 2006-2011
Iqbal et al. *Clin Infect Dis* 2015 Aug 22;61(4):584-92.
- Causes of Death and Characteristics of Decedents with Viral Hepatitis, United States, 2010
Ly et al. *Clin Infect Dis* 2014 58 (1): 40-49.

Select Grantee Publications/Reports

- The City of Philadelphia Health Department also published a report 'Building a Plan to end Hepatitis C in Pennsylvania'. It was noted that Pennsylvania has the opportunity to make public health history by developing the first state plan to end hepatitis C in the nation.
- The Division of Disease Control, Hepatitis Epidemiology Program published the 'Hepatitis Newsletter' which indicated that there were two major populations of Hepatitis C in Philadelphia, i.e. 'baby boomers' (born 1945-1965) and persons aged 19-35 years old.
- MMWR Publication (2015) 'Identification and Linkage to Care of Person with Chronic Hepatitis C Virus in Five Health Centers: Philadelphia, PA, 2012-2014' (C. Coyle, K. Viner, E. Hughes, H. Kwakwa, J. Zibbell, C. Vellozzi, D. Holtzman).

Select Grantee Publications/Reports

- In 2015, the Michigan Department of Health and Human Services (MDHHS) published 'Michigan Hepatitis C Fact Sheet'. It includes the number of substance abuse treatment admissions and the number of drug overdose deaths due to heroin, 2000-2013.
- Michigan Department of Community Health (MDCH) submitted to MMWR for publication 'The Impact of CDC's Hepatitis C Virus Birth Cohort Screening Recommendations—Michigan, 2009-2013' (J. Coyle, G. Brousseau, J. Mills, E. George, K. Kirkey, S. Eckel, K. Macomber).

Contact Information

- Thank you for inviting me to speak with you today.
- If you need more information about viral hepatitis surveillance at the state level, please contact your state health department.
- If you desire more information about viral hepatitis surveillance at the national level, please send inquiries to:

<http://www.cdc.gov/cdc-info/requestform.html>

or to Dr. Henry Roberts at hroberts@cdc.gov