

Current Public Health Issues in HCV: Primary and Secondary Prevention

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'The Changing Paradigm of HCV'

- Changing epidemiology of HCV in the US
 - National surveillance for viral hepatitis
 - Recent epidemiologic trends
- Prevalence, morbidity and mortality in the US: the health burden
- Barriers to getting chronic HCV persons tested, linked to care, and treated



Inadequacy of national surveillance to detect trends in IDUs

- Unlike HIV/AIDS surveillance, viral hepatitis is essentially unfunded
- Several (6-10) specially funded sites (Sentinel Surveillance, "EIP") have allowed somewhat better determination/insight into risk factors for infection



National surveillance for acute and chronic HCV: problems and issues

- Most reporting is of a single laboratory report "HCV antibody-positive"
- Differentiating chronic vrs acute vrs resolved infections
- All states are required to report acute HCV infections
- Reporting sites are overwhelmed by numbers of chronic cases: only 42 report 'chronic cases' to CDC



Deduplication Process

2180



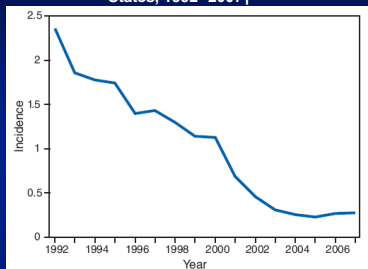
- 68% - duplicate/match
- 5% - missing s/co
- 2% - tests negative
- 1% - missing demographics

491

Source: Monina Klevens et al, *Emerg Infect Dis* Sept 2009; 15(9): 1499-1502



FIGURE 17. Incidence* of acute hepatitis C, by year --- United States, 1992-2007†

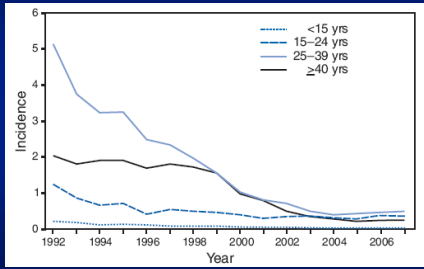


From: Danni Daniels, Scott Grytdal, Annemarie Wasley *Surveillance for Acute Viral Hepatitis - US, 2007* MMWR 2008; 57, No. SS-2 * Per 100,000 population.

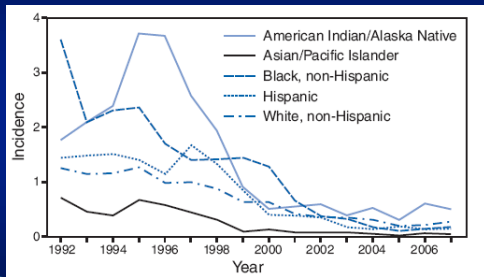
† Until 1995, acute hepatitis C was reported as acute hepatitis non-A, non-B.



Daniels D, Grytdal S, Wasley A. Surveillance for Acute Viral Hepatitis- US, 2007 *MMWR* 2009; 58, No. SS-3



From: Daniels D, Grytdal S, Wasley A. Surveillance for Acute Viral Hepatitis- US, 2007 *MMWR* 2009; 58, No. SS-3



Questions about the declining incidence

- Screening of the blood supply for HCV began in 1992, but this factor does not adequately explain the drop in HCV incidence
- What groups are at special risk for acute HCV?



Acute cases: epidemiology

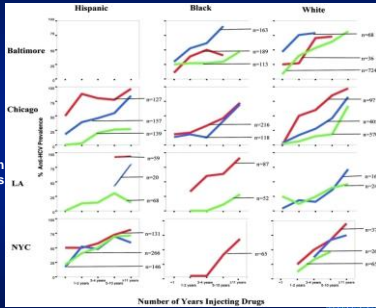
- Injection drug users
- Healthcare associated
- Sexual transmission?
 - Among heterosexuals
 - Among HIV-infected MSM and women



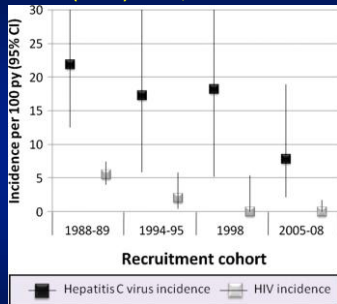
Are the dynamics of HCV infection in IDUs changing? Collaborative IDU Studies (CIDUS)

- Red, CIDUS I, 1994-6
- Blue, CIDUS II, 1997-9
- Green, CIDUS III, 2002-4

From: JJ Amon et al, Prevalence of HCV Infection among Injection Drug Users in the US, 1994-2004. *Clin Infect Dis* 2008;46:1852-8



Incidence per 100 person-years of HIV and HCV infection by recruitment cohort in the AIDS Linked to the Intravenous Experience (ALIVE) cohort, 1988-2009



From: Mehta S H et al. *J Infect Dis*. 2011;203:587-594



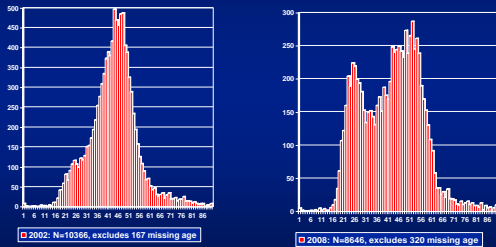
Topics for thought...

- Why have HCV infections in IDUs dropped over the last decade?
 - Shrinking pool of infected IDUs?
 - Decreases in needle-sharing?
 - Fewer IDUs?
 - Secondary benefit of HIV/AIDS knowledge/ prevention?
- Are we seeing a resurgence of IDU-associated HCV?



Age Distribution of Confirmed Hepatitis C Cases- Massachusetts, 2002- 2008

HCV: The Next Generation



Trends observed in Massachusetts, Wisconsin, Michigan, and Ohio



- These young IDUs tend to be:
 - young (aged 20-29);
 - white; and
 - non-urban (suburban, rural)
 - previous 'Oxycontin' users



**Mass. Investigation (Mar 2011)
Interview Findings (27 IDUs)**

Mean age started using drugs: 13.4


	N	%	Mean age started
Marijuana	25	100%	12.76 years old
Alcohol	24	96%	13.08 years old
Powder Cocaine	24	96%	16.04 years old
Heroin	22	88%	17.68 years old
Oxycodone	21	84%	16.52 years old
Crack cocaine	21	84%	17.62 years old
Oxycontin	20	80%	16.85 years old
Hallucinogens	18	72%	16.11 years old
Tranquilizers	17	68%	16.43 years old
Methadone	12	48%	18.08 years old
Inhalants	7	28%	15.14 years old
Methamphetamines	6	24%	18.83 years old

**Another emerging trend
(or emerging recognition):**

**HCV IN NON-HOSPITAL
HEALTHCARE SETTINGS***



* ND Thompson et al, *Ann Intern Med* 2009; 150:33-9.

**Other “emerging” risk factors for HCV:
healthcare setting/poor needle hygiene**

- About 20 outbreaks/clusters investigated in last 10-12 years*
- Inadequate needle/syringe hygiene in non-hospital healthcare settings:
 - Colonoscopy and other med/surg clinics
 - “Alternate” care (chelation therapy)
 - Dialysis units

* Thompson et al, *Ann Intern Med* 2009; 150:33-39

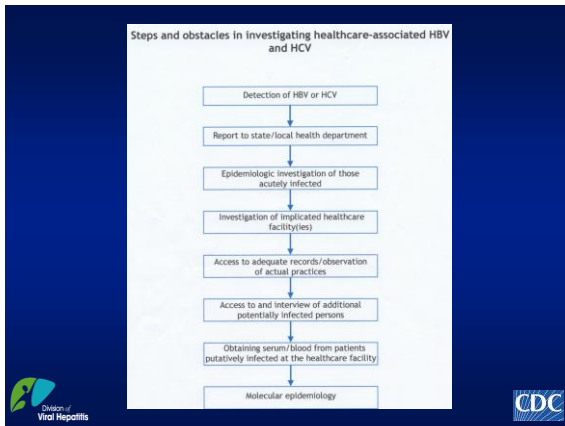
 

Outbreaks in Outpatient Settings

State	Setting	Year	Type	Cases	Screened	At Risk
NY	Colonoscopy	2001	HCV	19	1,315	2,192
NY	Private MD Office	2001	HBV	38	222	1,042
OK	Pain Mgmt. Clinic	2002	HBV, HCV	31, 71	795	908
NE	Hem./Onc. Clinic	2002	HCV	99	494	613
CA	Pain Mgmt. Clinic	2003	HCV	4	35	52
MD	Nuclear Imaging (3 clinics)	2004	HCV	16	75	88
FL	Chelation therapy	2005	HBV	7	106	253
CA	Alternative Med. Clinic	2005	HCV	7	15	15
NY	Multiple sites	2006	HCV	6	841	4,490
NY	Anesthesiology	2007	HCV	2	?	> 10,000
NV	Endoscopy	2008	HCV	6	>12,000	>40,000

Outbreaks in Dialysis Units

State	Setting	Year	Type	Cases	Screened	At Risk
MD	Hemodialysis	1998	HCV	7	51	51
OH	Hemodialysis	2000	HCV	5	95	95
WI	Hemodialysis	2000	HCV	3	24	24
IL	Hemodialysis	2001	HCV	11	73	75
NY	Hemodialysis	2006	HCV	5	183	183
VA	Hemodialysis	2006	HCV	7	64	64



Is Sexual Contact a Major Mode of HCV Transmission?*

- 80 investigations reviewed: no sexual transmission between immunocompetent adults
- Regular sex partners: no sex transmission (750,000 contacts; risk < 1/10 million sex contacts)
- HIV-infected MSMs: several studies ~ 0.5-1.0/100 py acute HCV infection



* Tohme, Holmberg. *Hepatology* 2010; 52:1497-1505



The preponderance of evidence:

- IDU is still the main driver of the HCV epidemic in the United States
- Some unknown proportion, possibly large, of HCV infections are acquired in healthcare settings
- HCV in HIV-infected men an “emerging” problem, but still relatively small contributor to overall incidence



THE GROWING BURDEN OF CHRONIC HCV

PREVALENCE OF HCV AND ASSOCIATED MORTALITY

“SECONDARY” PREVENTION:

- Getting people tested/screened
- Linkage to care
- Treatment



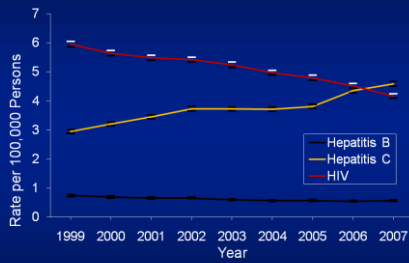
The increasing national problem of chronic HCV disease

- CDC estimates ~3 million Americans with chronic HCV.* (Others estimate more.)
- 20-40 years “incubation” between infection and detected liver disease
- Particularly a problem for the ‘Baby Boom’ generation as it ages

*GL Armstrong et al *Ann Intern Med* 2006; 144:705-14; and M Denniston, unpublished analysis of NHANES data 2006-8.



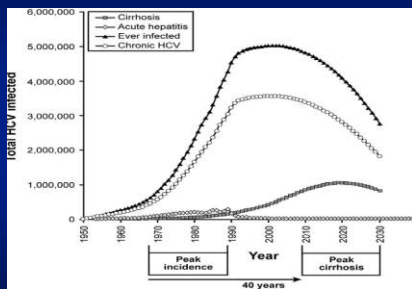
Age-Adjusted Rates of Mortality: Hepatitis B, Hepatitis C, and HIV, United States, 1999 – 2007



In 2007, > 70% of registered deaths in HCV-infected were aged 45-64 yo



The changing paradigm of HCV: prevalence & morbidity



From: GL Davis et al, *Gastroenterology* 2010 138:513-21.



BARRIERS

- How well are these patients getting diagnosed, linked to care, treated, and cured?
- Data coming from 3 studies:
 - CHeCS
 - NHANES
 - REACH



Chronic Hepatitis Cohort Study ('CHeCS'):

- 2 500 HBV and 11 000 HCV patients in 4 sites (Hawaii; Portland OR; Detroit; central PA)



Characteristics of Patients with Chronic Hepatitis C, CHeCS, 2006 – 2007

Characteristic	Total (N=10,710) (%)	Portland, OR (N=3,469) (%)	Hawaii (N=1,193) (%)	Detroit, MI (N=3,893) (%)	Danville, PA (N=2,145) (%)
Age					
<20	0.3	0.1	0	0.3	0.6
20-29	5.0	1.7	1.0	2.8	18.0
30-39	5.8	5.6	2.7	4.3	10.8
40-49	21.6	24.4	18.4	16.0	29.2
50-59	40.4	32.7	53.4	56.3	32.8
60-69	13.0	12.1	17.6	16.3	5.9
70-79	3.8	2.7	5.5	5.3	2
≥80	1.2	0.8	1.4	1.6	0.7
Sex					
F	41.0	41.7	36.3	38.3	47.3
M	59.0	58.4	63.7	61.7	52.7
Race					
Status known	75.4	72.1	73.9	94.0	96.9
White	66.0	85.1	49.2	42.0	92.5
Black	25.1	5.2	3.0	54.7	5.2
Asian/Pacific Islander	5.0	2.5	39.0	0	0.1
American Indian/Alaska Native	0.8	2.0	3.0	0	0.1
Other	2.5	4.4	4.8	1.0	1.8
Household income, census tract					
Status known	77.7	99.4	95.6	95.7	-
<15,000	2.4	0.7	0.3	4.8	-
15,000-30,000	18.0	10.0	7.8	28.5	-
30,000-49,000	45.1	54.5	47.5	35.8	-
50,000-75,000	27.4	31.0	37.3	21.1	-
>75,000	7.3	3.9	7.4	10.0	-
Insurance					
Status known	95.5	94.9	90.7	100	100
Medicaid	12.5	2.4	10.3	15.0	34.0
Medicare	3.5	0	0	0	16.5
Medicare Plus	17.3	10.3	16.1	33.0	0
Private	61.3	81.8	73.3	46.9	45.0
None	5.0	0	0	10.6	4.5
HBV/HCV coinfected	2.4	-	-	-	-



Some Highlights from the "Pilot"/ Proof-of-concept Study (Spring 2009) HEPATITIS C (2008 data only)

- **9,163 chronic HCV patients were:**
 - usually (71%) 40- 60 years-old; 55% male;
 - 29% covered by public insurance; 15% Black, 6% Hispanic;
 - 8% received drug therapy in 2008– usually, pegylated interferon and ribavirin;
 - had been followed in the health care system over three years (mean, 37.1 mos);
 - 7% had a liver biopsy in 2008; 22% had HCV RNA levels over 1 million copies/μl; and
 - 3% had died in 2008.



Some Preliminary CHcS Data

No. adults	% tested	% HCV-positive	% tested after IALT	% referred for spec. care	Median/mean days to flu for spec. test
870 874	13%	5.1%*	34%	70%	423/93

•Est. 43% of all HCV-infected persons in this population have been diagnosed (tested 'positive')– ie, 57% unaware of their status



NHANES Analysis, 2001-2008

- NHANES is a nationally representative survey of about 5,000 randomly selected persons/year
- In 2001-2008, about 1.3% were HCV-Ab positive, implying about 3 million HCV-infected persons in the US



Some results from a follow-up survey of NHANES participants testing HCV-positive

- 30,140 tested
- Anti-HCV positive (n = 393)
- Responded to survey (n = 170)
- 84 (49.4%) knew they were positive pre- NHANES testing
- Saw a doctor (n = 131 [77%])
- Told follow-up needed (n = 66)
- Ever treated (n = 22)



“Racial and Ethnic Approaches to Community Health” (‘REACH’) Study

General characteristics:

- 24,169 minority residents in 29 communities interviewed in 2010
- About 40% AfrAm; 34% Hisp; 16% Asian/PI; and 10% Am/Alaskan Native
- 45% had hsehd income < \$25k
- 20% said needed to see MD, but could not afford



REACH Findings specific to HCV

- 4 570 (19%) said they’d been tested for HCV
- Of them, 333 (7.2%) told HCV+
- Of these, 152 (46%) saw a physician for their HCV and 142 (43%) said they had received therapy for it



Putting this all together....

(generous/conservative assumptions)

- About 3 m HCV-infected US residents
- 40%-50% are diagnosed/known infected
- 50%-70% of them get initial hepatitis care
- About 1/3 of HCV patients stay in care, receive and complete antiviral therapy
- Treatment cures (SVR) have been ~ half
- Only about 5% of HCV-infected persons have been cured/achieved SVR



TESTING

- Targeted testing of traditional risk groups has been inadequate
 - Hard-to-access risk groups (IDU)
 - Many are unaware of risk/infection
 - Most acute infections asymptomatic
- Discussion has shifted: screening of Baby Boomers (aged 45- 65 yo)?



LINKAGE TO CARE

- Only about 1/2 of all those diagnosed with HCV seek and continue care for their infections
 - CHECS: 70% of 44,400 HCV-diagnosed pts had specifically sought care (initially); only 15% were in care for HCV
 - REACH: 46% of 835 HCV-infected minority respondents were seeing an HCV clinician



LINKAGE TO CARE: BARRIERS

- HCV a chronic disease with no or non-specific symptoms: depression, arthralgias/arthritis, fatigue
- May be perceived as less priority than immediate life stresses
- Treatment is expensive and, until recently, not perceived as likely curative



GETTING TREATED

- AASLD Guidelines still quite complicated
- Decision to rx may require liver biopsy showing reasonably advanced disease
- Only ~ 2 000 board-certified hepatologists (AASLD = 3 500, incl surgeons/others)
- In 2006, hepatologists saw about 45 outpts/ wk; waiting time 6½ wks for initial app't.
- Expense: Peginterferon/ribavirin ~\$15,000/48-week course



Some Barriers to Improving our National Response to HCV

- The chronic and asymptomatic/mildly symptomatic nature of the infection
- Incidence is declining
- Groups affected, esp IDUs, not politically strong/marginalized
- Therapeutic and surgical nihilism
 - we can't cure people
 - we can't afford to transplant everyone



Solutions

- Improving therapy will lead more clinicians to treat more people, to treat earlier, and to forego liver biopsy
- Increasing awareness in public and medical community (eg this meeting)
- Political action that advocates improved surveillance, screening, linkage to care and reduction of treatment barriers



Institute of Medicine (IOM) Report*

- Strong recommendations to improve:
 - Surveillance
 - Knowledge and Awareness
 - Immunization
 - Viral Hepatitis Services (medical)

*IOM. Hepatitis and Liver Cancer: Nat Strategy for Prev and Control. Wash, DC; Nat Acad Press, January 2010



SUMMARY

- HCV incidence has declined markedly in the last 15 years, in all demographic groups
- Groups of current concern re acute HCV:
 - Young IDUs
 - Patients receiving outpatient care
 - HIV-infected men and women



SUMMARY- continued

- Multiple barriers to getting all 3 million HCV-infected US residents tested, into care and treated appropriately
- Major push to improve surveillance for and prevention of HCV infection, and treatment of HCV disease



Thank you!