

BALTIMORE CITY HEALTH DEPARTMENT

1001



# Hepatitis C Infection in Baltimore City: A Need for Funding

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# Hepatitis C Virus

- *Belongs to the Flaviviridae Family along with West Nile, Dengue, classic swine fever(Pestivirus)*

- *Enveloped, ~10 KB, + sense RNA genome with 6 distinct genotypes, several subtypes*

- *70% of US infections involve genotype 1, the least responsive to interferon treatment*

- *Displays a high rate of replication( $10^{12}$  virions produced each day vs.  $10^9$  in HIV) and high mutation rate.*

- *70% of infections are asymptomatic*

- *75% of transmissions become chronically infected*



# HCV Risk Factors:

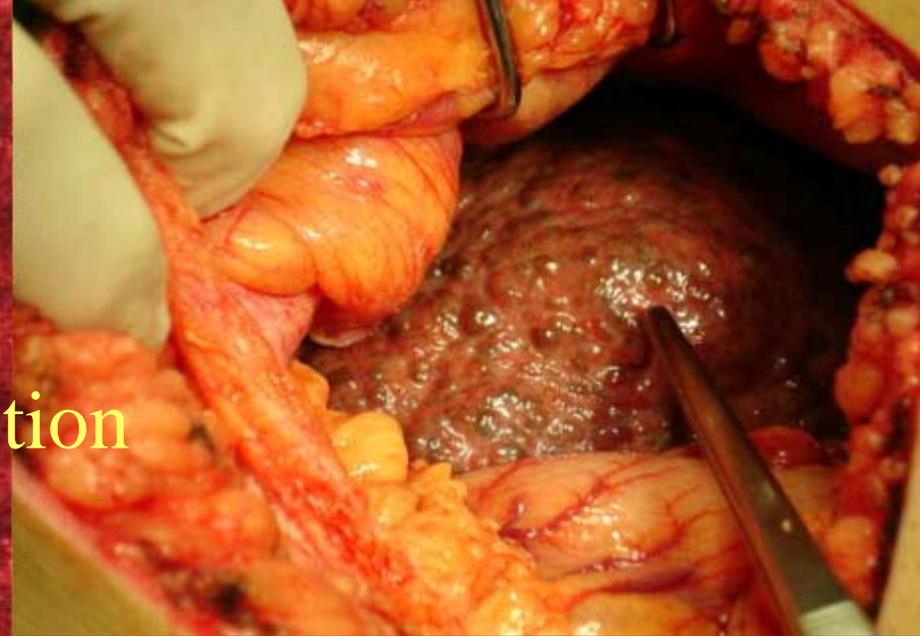
- \* any use of illegal drugs taken by injection
- \* received blood, blood products, or solid organs from a HCV positive donor
- \* were ever on long-term kidney dialysis
- \* have multiple sex partners
- \* lived with someone who was infected with HCV and shared items that could contain blood
- \* were ever a health care worker and had frequent contact with blood on the job
- \* received unsterilized tattooing or piercing
- \* were born to HCV-positive mother

Transmission Mode	Percent
injection drug use	60%
sexual	15%
transfusions	10%
perinatal, nosocomial, and	5%
unknown	10%



# A Cause for Concern

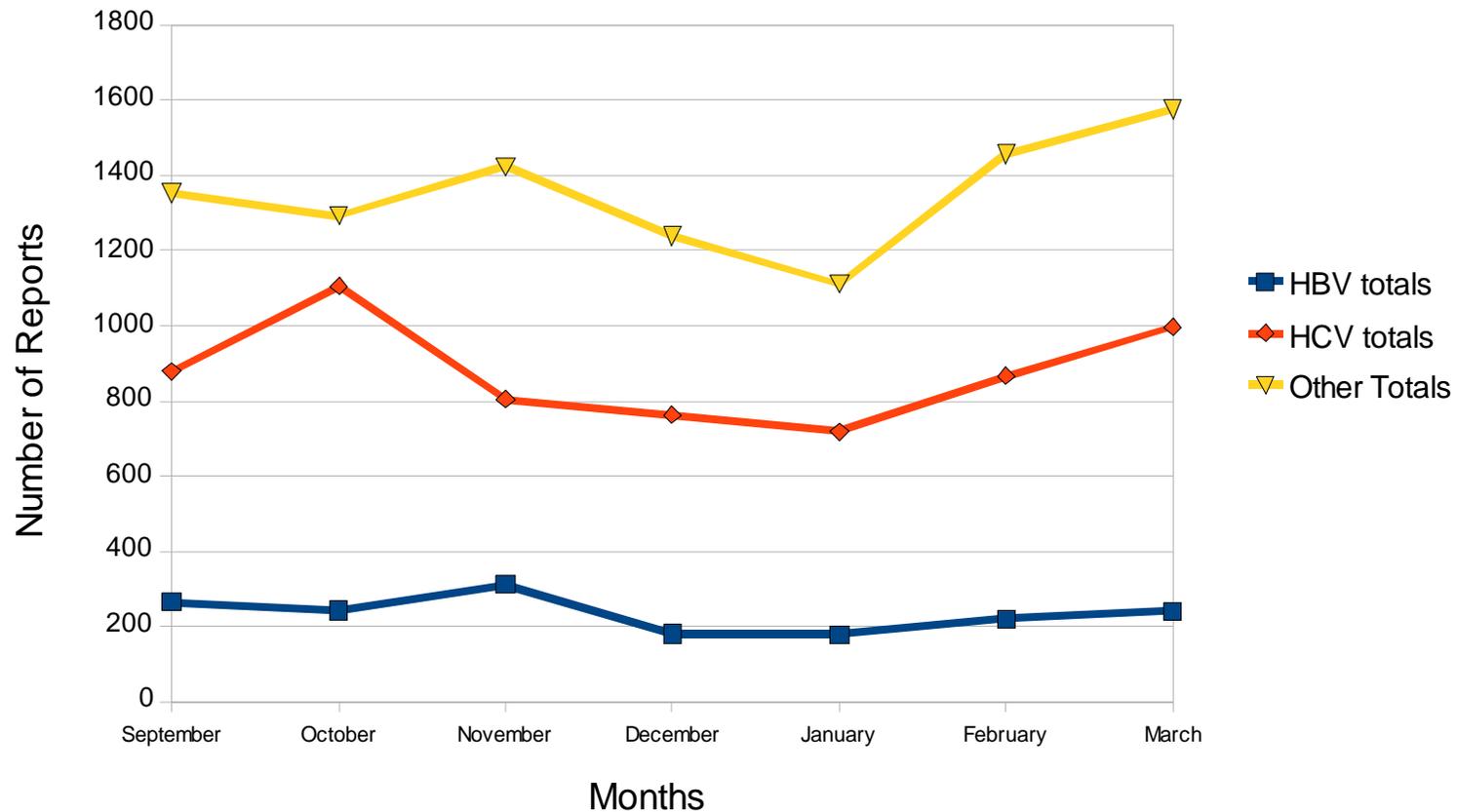
- most common blood-borne infection
  - est. 4 million chronic carriers in US
  - roughly 20,000 new cases each year
- leading cause of adult liver transplant surgery
- causes 10,000 deaths per year
- \$1 billion per year in medical costs
  - In 2007, 103 liver transplants were performed at JHH and UMM.  
103 X 350,000= over \$36 million spent locally(solely for surgery)
- Age complicates disease natural history.
  - The next two decades will display a surge in HCV related liver disease and cancer.



# The Unique Situation in Baltimore

- Believed to contain the majority of HCV infections in state of Maryland
- The drug use population is large:
  - drug arrest is 8 times that of state rate and comprises 64% of state drug arrests
  - from 2004-05 over 17,000 city residents were treated for heroin addictions and another 14,107 for cocaine
- HCV in IDUs:
  - In 1993, 93% of 267 IDUs were antibody positive
  - In 1988, 80% of 771 IDUs screened positive

Numbers of Laboratory Reports Faxed to BCHD



In the past 7 months, over 17,000 reportable disease reports have been sent to BCHD ACD.

6,133 or 35% were due solely to HCV  
10% due to HBV

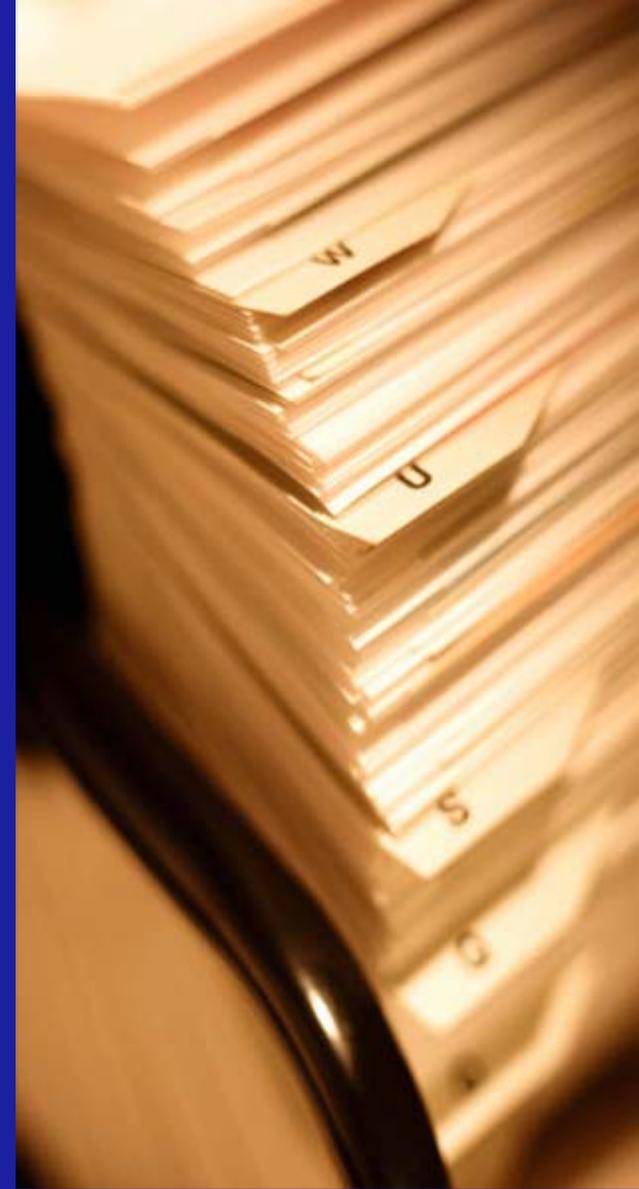
# The Endless Pile

By the end of the year

- \*30,000 total reports will be received
- \*10,500 will be HCV related
- \*2,800 will be HBV related

## Funding limits staff

- record entry falls unto one individual
- any investigation inevitably adds precious time
- events like the recent *S. typhimurium* and H1N1 outbreaks often require full attention leaving no time for anything else



# As if that wasn't enough.....

- acute case definition requires multiple tests and symptoms, difficult to gather all information
- critical information such as supplemental tests, liver enzyme values, and signal to cutoff ratios needed for CDC case designation are missing
- patient contact information, address, date of birth, demographics are blank
- individuals can also be screened at more than one location leading to duplication of reports



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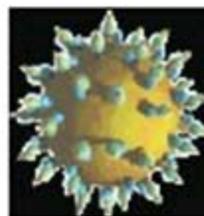
Community Health Administration

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## HEPATITIS C

What do over 100,000 Marylanders  
have in common?



### Hepatitis C

And 2 out of 3 of them  
(66,000) don't know that they  
are infected

- [Screening or Treatment](#)
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- link city residents to DHMH Hepatitis C website, [www.HepCMaryland.org](http://www.HepCMaryland.org), and DHMH adult viral Hepatitis coordinator, Patricia Lawson
- education of Hepatitis C health consequences and transmission factors
- encourage screening in HCV high risk populations

# Exploring the 1,846 HCV confirmed past or present NEDSS Cases:

Percentage of cases reporting....

47% Anti-HCV antibody

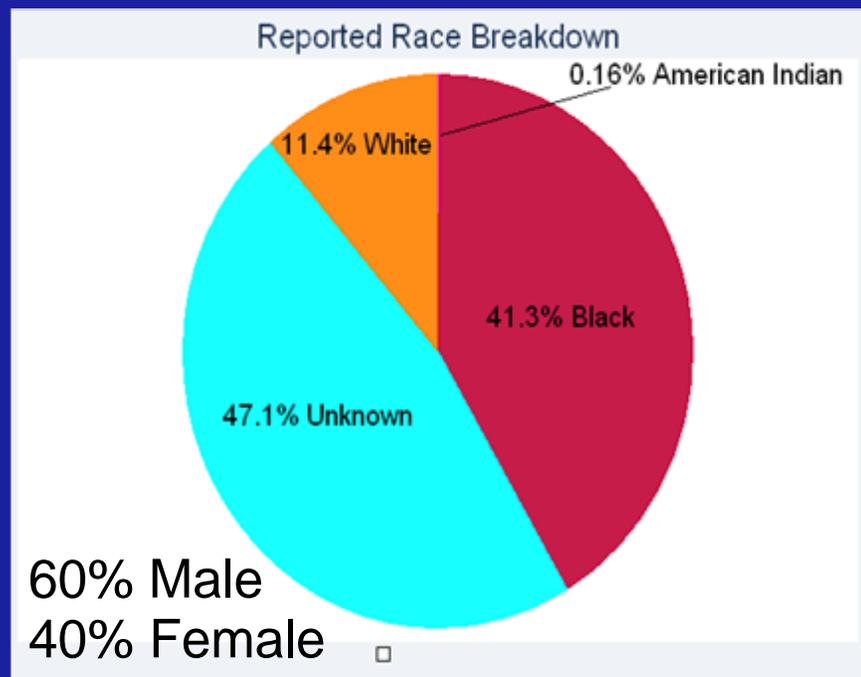
46% RNA Test

35% signal to cutoff ratios

12% ALT values

12% AST values

10% secondary assay listed



Number of Cases	Risk Factor Information
4 (no)	ever injected nonprescription drugs
4 (no)	blood transfusion before 1992
4 (no)	clot factor before 1987
3 (no)	ever incarcerated
4(no), 1(yes)	medically employed person
4 (yes)	STD treated individual
1 (yes)	HCV sexual partner contact type
12	listed suspected illness onset date
4 (no)	long term hemodialysis
4 (no)	organ transplant before 1992
79(no), 6(yes)	jaundice indication

## 6 Most Frequent Zipcodes:

21213 Edison (East)

21202 Greenmont/ Inner Harbor (Central/East)

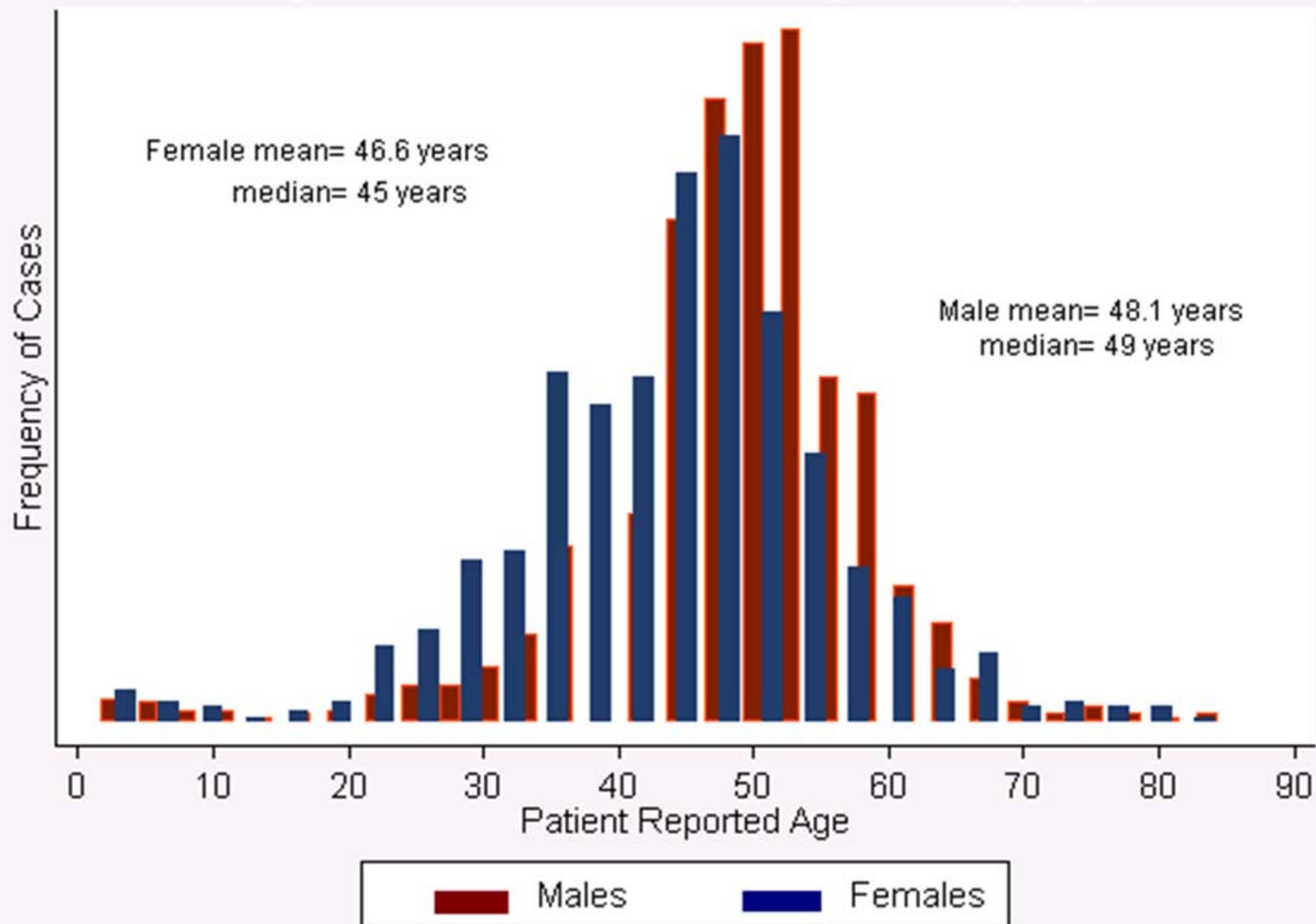
21218 Waverly (North)

21217 Druid Hill/Bolton (Central)

21215 Pimlico (Northwest)

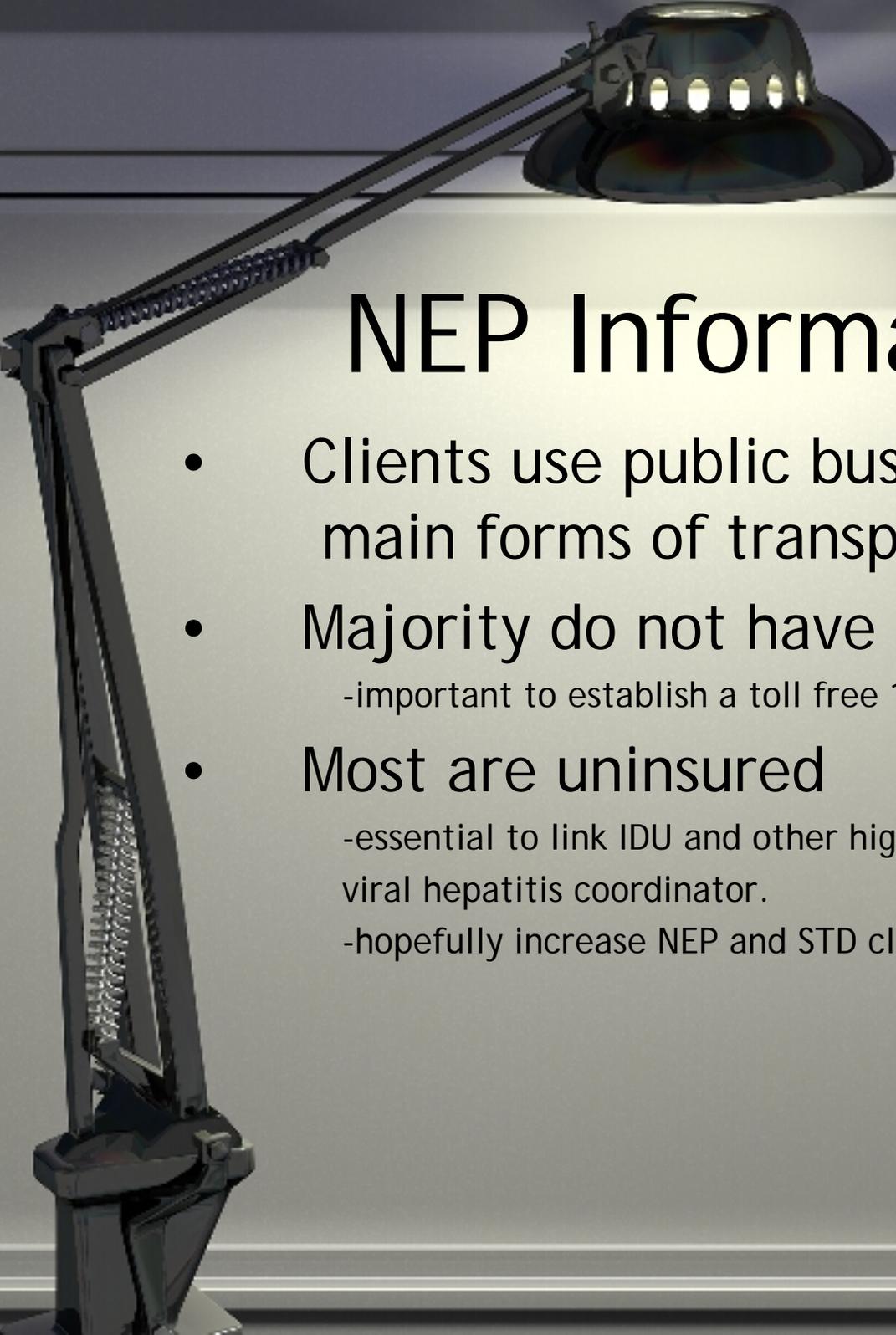
21223 Carroll/Franklin (West)

# Percentages of Cases in Each Age Group by Gender



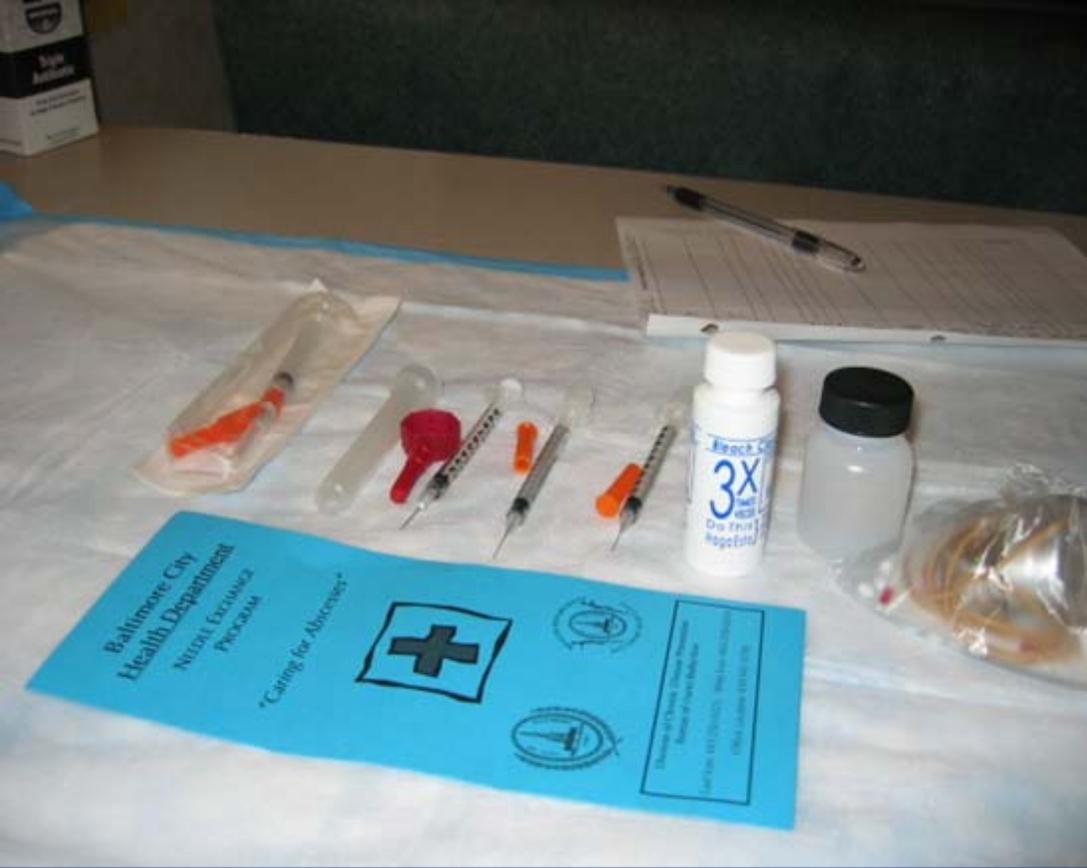


## The Baltimore Needle Exchange Program: How to Target IDUs



# NEP Information Gained

- Clients use public buses, walking, and metro as main forms of transportation
- Majority do not have access/cannot use internet
  - important to establish a toll free 1-800-MyLiver number
- Most are uninsured
  - essential to link IDU and other high risk persons to health care network via adult viral hepatitis coordinator.
  - hopefully increase NEP and STD clinic participation through campaign referral



## The key to risk reduction is public awareness and education

>BNEP has reduced HIV, another blood-borne pathogen, by 74% since inception

Goals of the 2002 MD HCV Control and Prevention Plan:  
"to develop and make available through multiple modalities, informational material about Primary prevention targeted to infected and at-risk persons."

# HEPATITIS

**HEPATITIS C** INFECTION  
CAN CAUSE SERIOUS LIVER  
DISEASE AND CANCER.

IT CAN TAKE DECADES  
FOR SIGNS OF ILLNESS  
TO SHOW,



**IF YOU ANSWER YES TO ANY OF THE FOLLOWING YOU SHOULD BE SCREENED:**

- Ⓒ **Have you ever injected drugs, even once?**
- Ⓒ **Received a blood transfusion, clotting factors, or organ transplant before July 1992**
- Ⓒ **Been on long-term kidney dialysis?**
- Ⓒ **Lived with someone who was infected with HCV and shared items like, razors, nail clippers, and toothbrushes?**
- Ⓒ **If you were born from an HCV infected mother**

**1-800-MYLIVER | WWW.HEPCMARYLAND.ORG**

# Funding and Budget

- **Grant application to the Harry and Jeanette Weinberg Foundation MD small grants program**

Description	size: height X width	territory coverage	quantity	cost
External Bus Displays	large: 30" X 144"	systemwide(garage choice)	60	\$13,200
Interior Bus Displays	medium: 22" X 21"	systemwide	300	\$6,900
Interior Metro Displays	medium: 23" X 21"	systemwide	300	\$8,800
Metro Station Displays	large: 46" X 60"	choice stations	40	\$5,700
Image Production and Design				\$3,000
Toll Free Telephone Number				\$300
			Total	\$37,900

# Special Thanks to

MaryGrace Munoz, ACD Director



Kompan Ngamsngna, Epidemiologist

Patricia Lawson, DHMH Viral  
Hepatitis Coordinator

David Bell, Graphic Artist



## References Continued:

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16. Garfein RS, Vlahov D, Galai N, Doherty MC, Nelson KE. Viral infections in short-term injection drug users: the prevalence of the **hepatitis C, hepatitis B**, human immunodeficiency, and human T- lymphotropic viruses. *Am J Public Health* 1996;86(5):655-61.
17. Maryland Hepatitis C webiste. Department of Mental Health and Hygeine. Online 22 April 2009 <[www.hepcmaryland.org](http://www.hepcmaryland.org)>.
18. Gregory L. Armstrong, Miriam J. Alter, Geraldine M. McQuillan, Harold S. Margolis. The Past Incidence of Hepatitis C Virus Infection: Implications for the Future Burden of Chronic Liver Disease in the United States. *Hepatology* 2000 Mar;31(3):777-82.
19. Baltimore, MD: Profile of Drug Indicators. *Office of National Drug Control Policy, Drug Policy Information Clearinghouse.* December 2006. Online 29 April 2009 <http://www.whitehousedrugpolicy.gov/statelocal/md/mdbaltimore.pdf>.

### Images:

- Slide 1: Electron Microscopy of HCV. Online 29 April 2009 [http://en.wikipedia.org/wiki/File:Em\\_flavavirus-HCV\\_samp1c.jpg](http://en.wikipedia.org/wiki/File:Em_flavavirus-HCV_samp1c.jpg).
- Slide 4: Murra Sacca, Julio. Photo: Liver, Hepatitis Cirrhosis. Online 29 April 2009 <http://www.murrasaca.com/archivodeimagenes/CirrhosisSurgery.jpg>
- Slide 9: Maryland Hepatitis C webiste. Department of Mental Health and Hygeine. Online 22 April 2009 <[www.hepcmaryland.org](http://www.hepcmaryland.org)>.