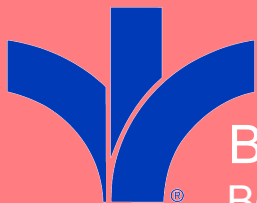


THE NEXT WAVE OF HCV: THE EPIDEMIC OF INTRAVENOUS DRUG USE

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Bon Secours Health System
Richmond and Newport News, VA



Bon Secours Liver Institute of Virginia
Bon Secours Medical Group

THE HEPATITIS C EPIDEMIC

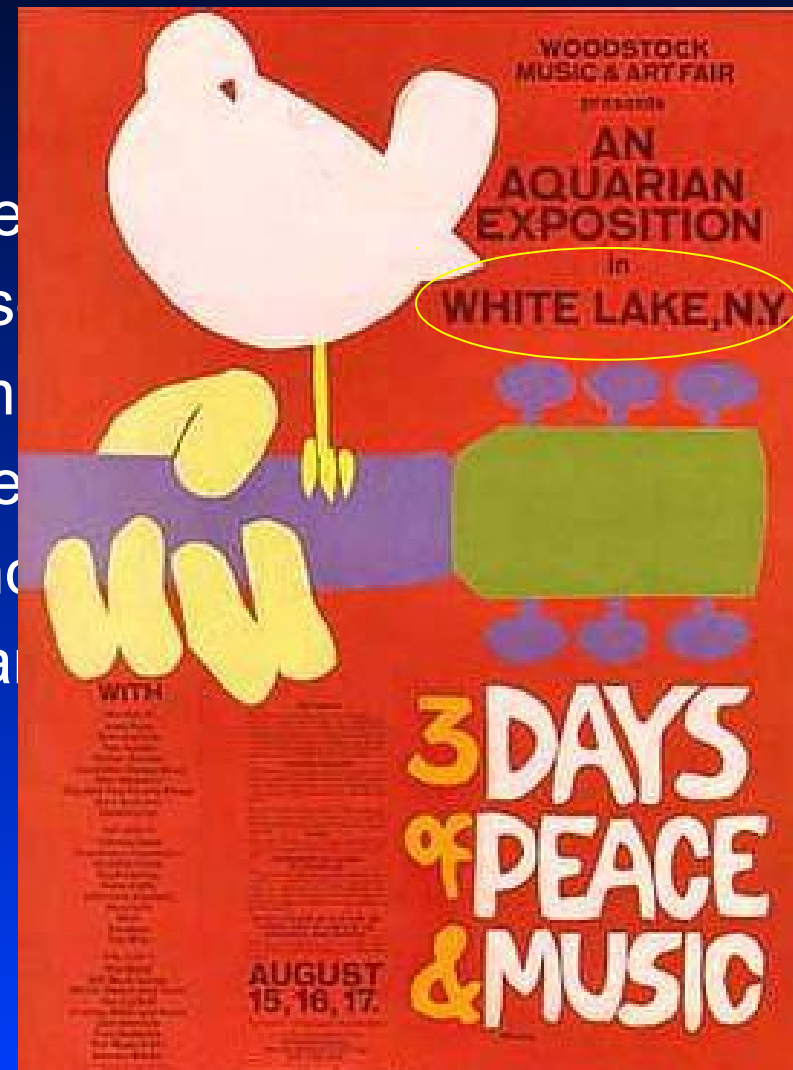
THE FIRST WAVE

- Began in the 1960s
- Transfusion of blood products became common
- Medical equipment was still reused in many countries
- Some vaccinations were contaminated
- The decade of discontent, peace and love
 - The British export of Rock and Roll
 - Intravenous heroin and intranasal cocaine use

THE HEPATITIS C EPIDEMIC

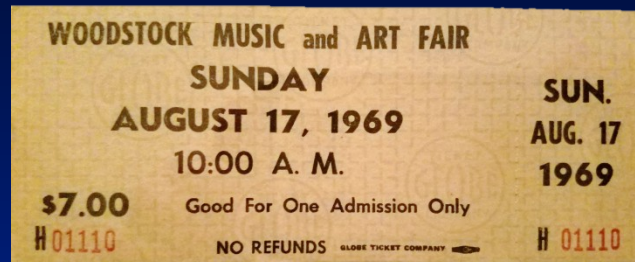
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 - Woodstock festival of 1969

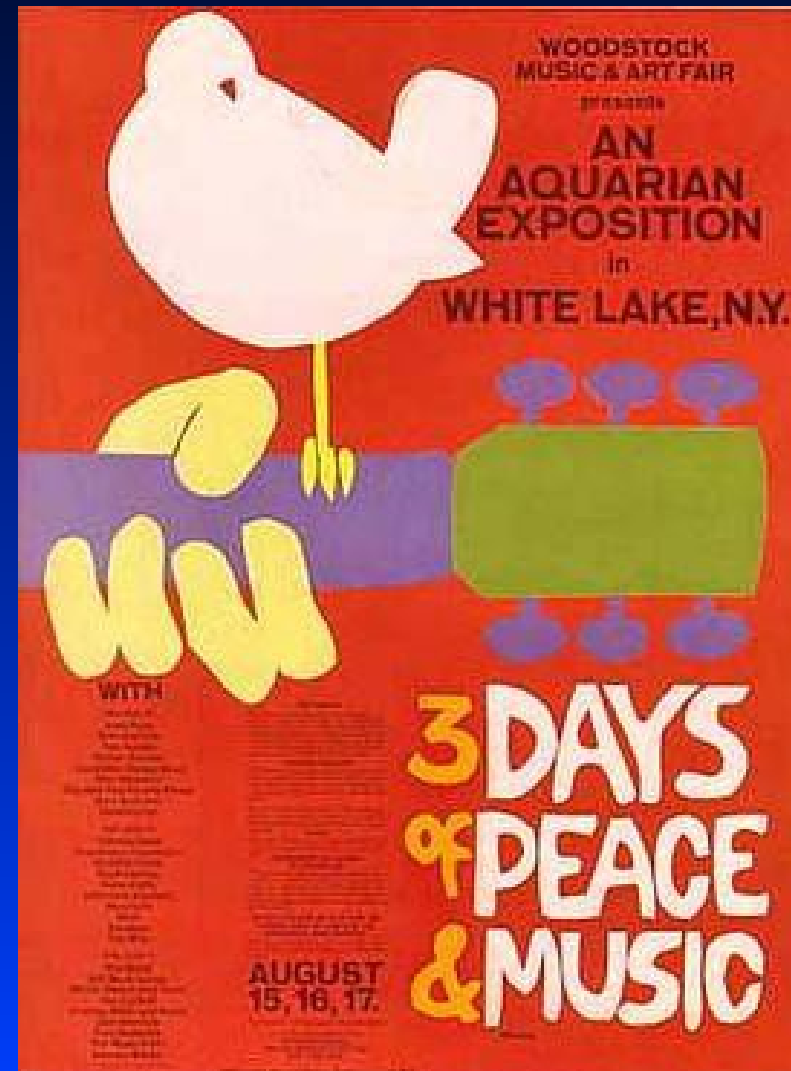


THE HEPATITIS C EPIDEMIC

THE FIRST WAVE

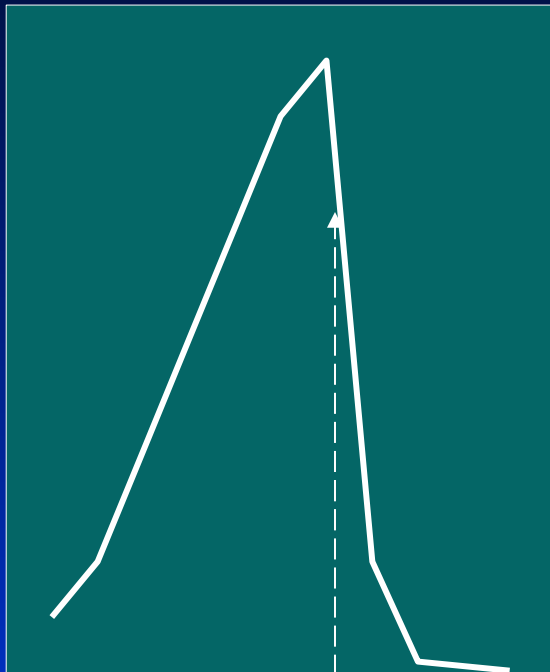


- Dr Shiffman's original ticket
- Never used because 300,000 concert goes overwhelmed the fences and festival opened to all
- Sells for ~\$1,000 on eBay
- Dr Shiffman was not part of the first wave of HCV



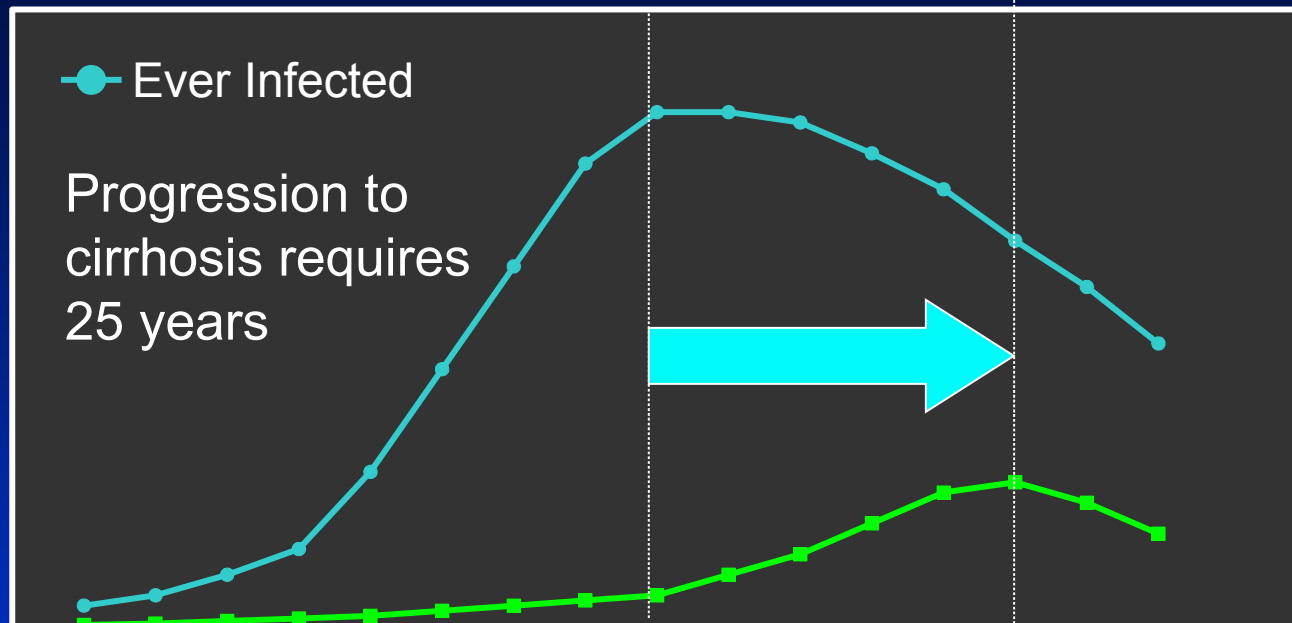
THE HEPATITIS C EPIDEMIC

THE FIRST WAVE

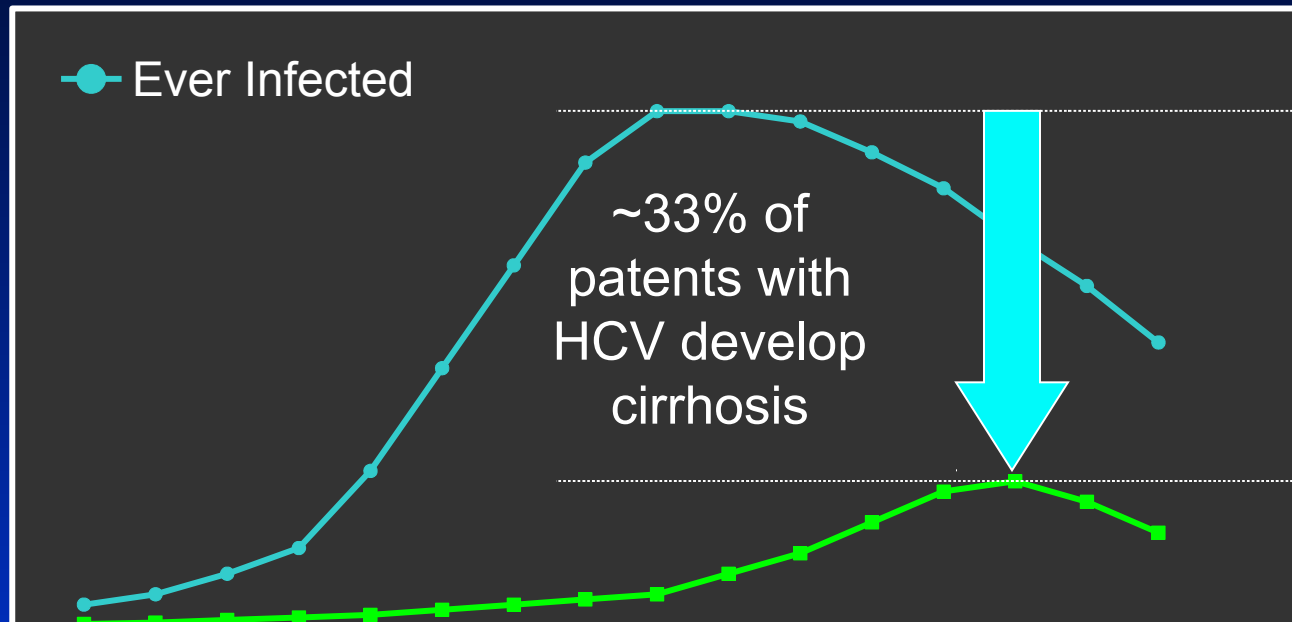


- Primarily through transfusion of blood and blood products
- Non-A, Non-B hepatitis
- Risk in 1960-70s: ~10-20%/unit
 - 100-200,000 infections annually
- Risk in 1980s: 2-5%/unit
 - Screening donated blood for HBV, elevated ALT and HIV
- After 1990:
 - HCV testing developed
 - HIV epidemic at its peak
 - Universal precautions

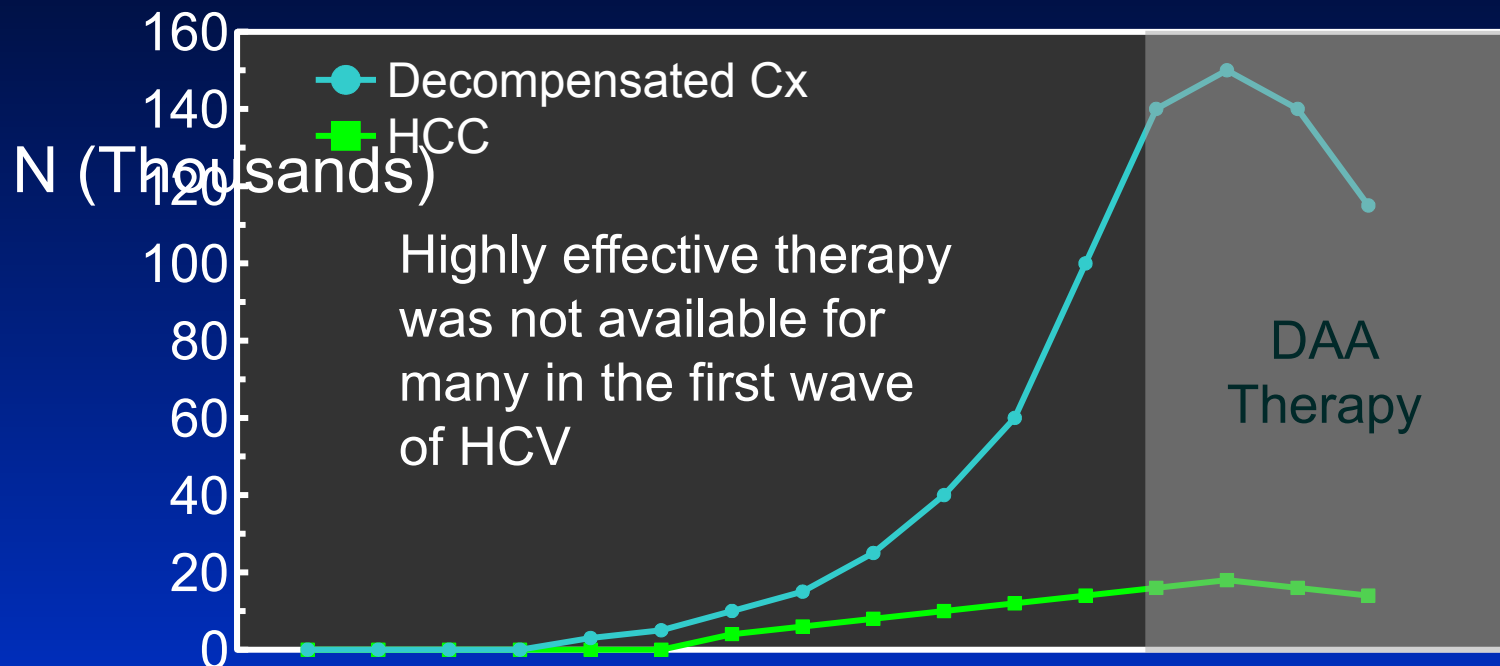
CHRONIC HCV INFECTION THE FIRST WAVE



CHRONIC HCV INFECTION THE FIRST WAVE

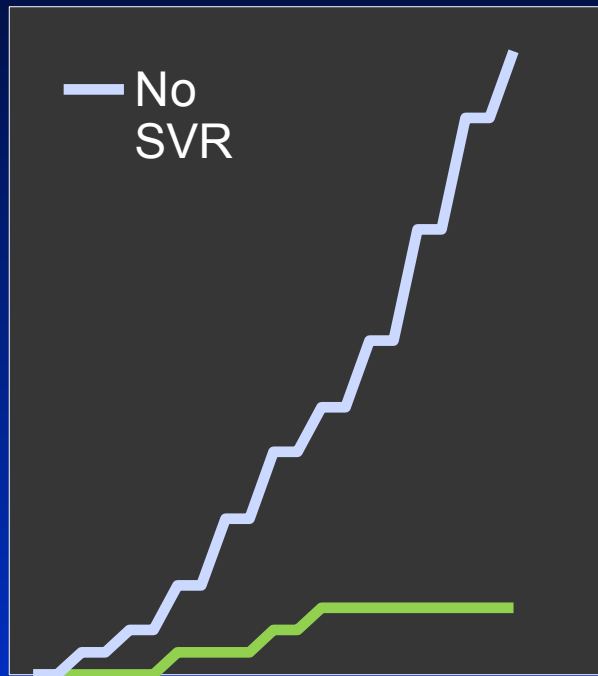


CHRONIC HCV INFECTION FIRST WAVE



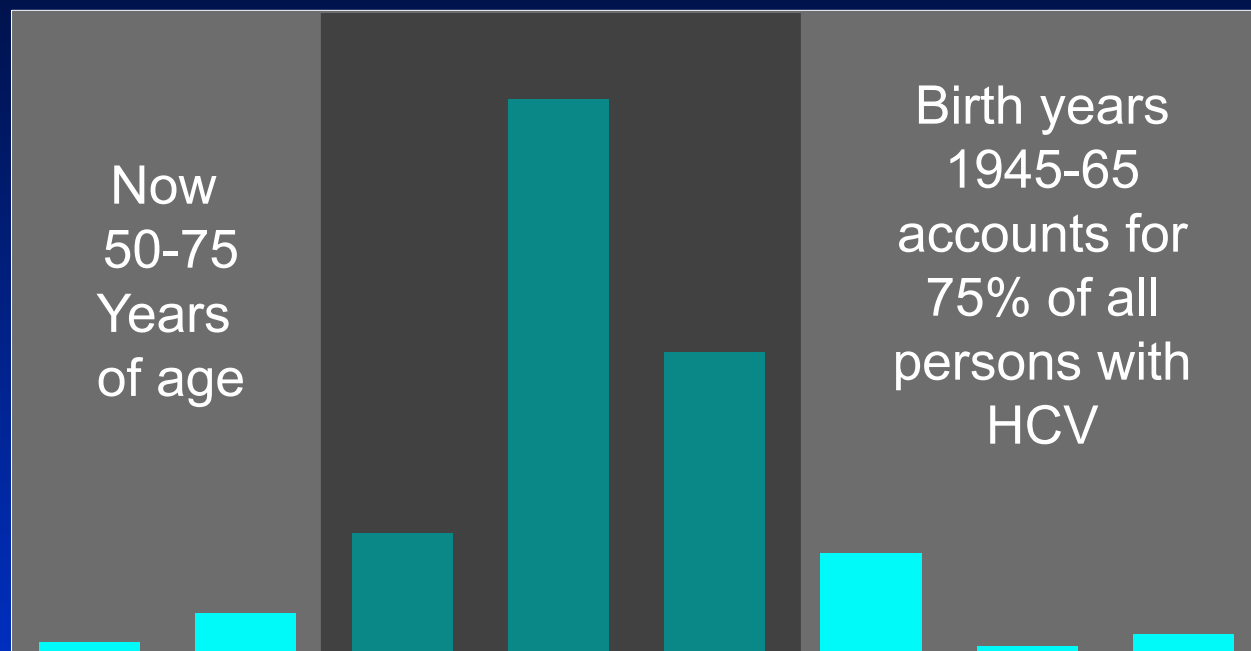
CHRONIC HCV INFECTION

THE FIRST WAVE



- About 33% of baby boomers developed cirrhosis
- Available treatment was toxic and many could not tolerate it
- Only about 25-33% of patients achieved SVR/cure
- Patients with cirrhosis and SVR/cure had reduced mortality but remain at risk for developing HCC

THE FIRST WAVE OF HCV THE BABY BOOMER GENERATION

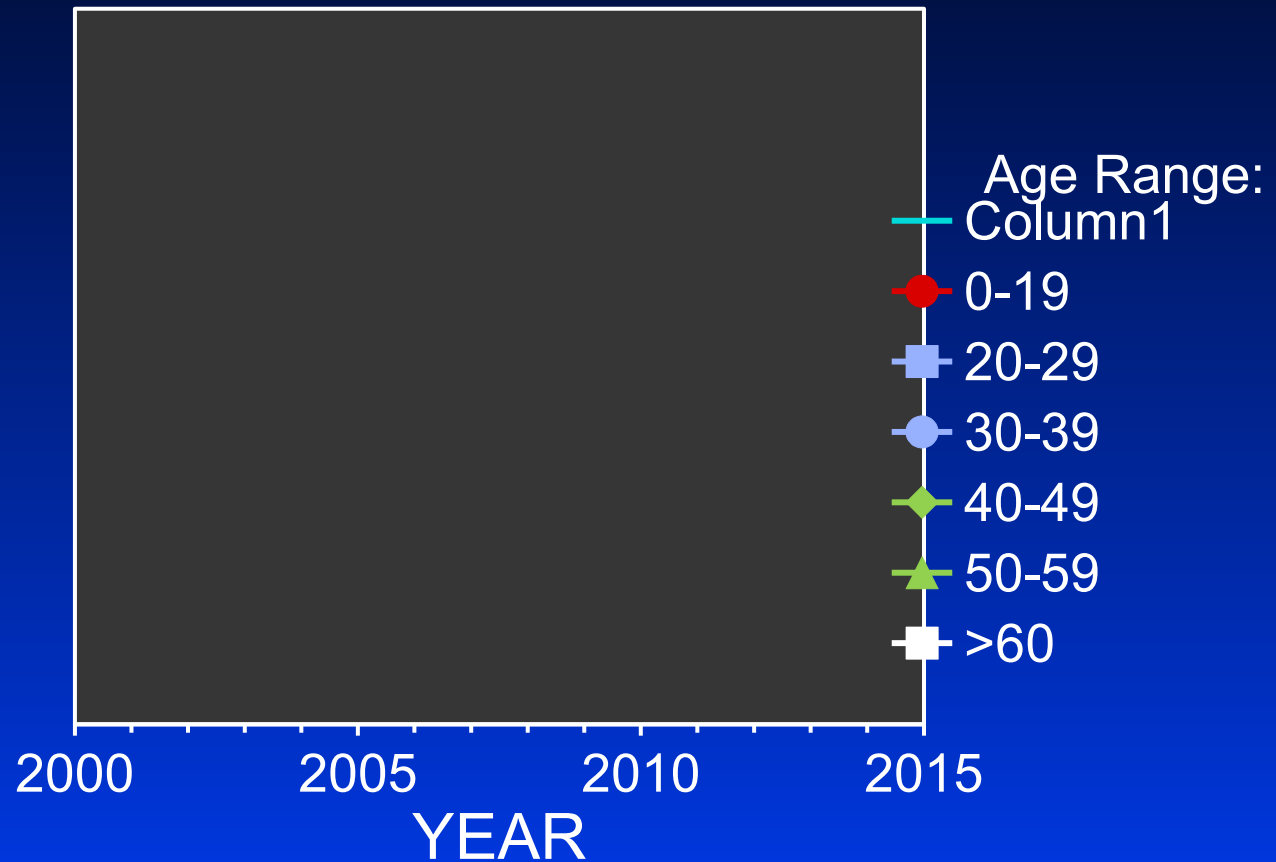


ACUTE HCV THE SECOND WAVE

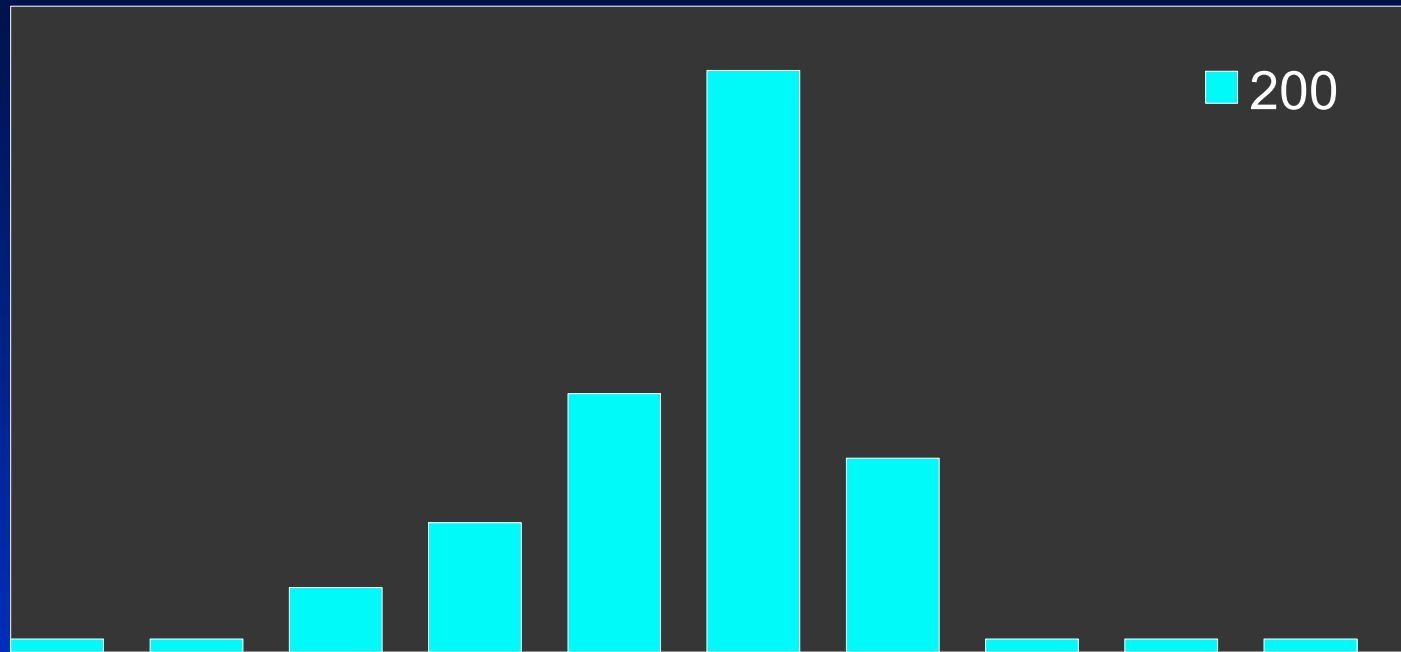


- Started in 2005-10
- New cases of HCV increased 170% in just the past 5 years
- 900-2,500 cases annually
- Due to increased prevalence of IV drug use

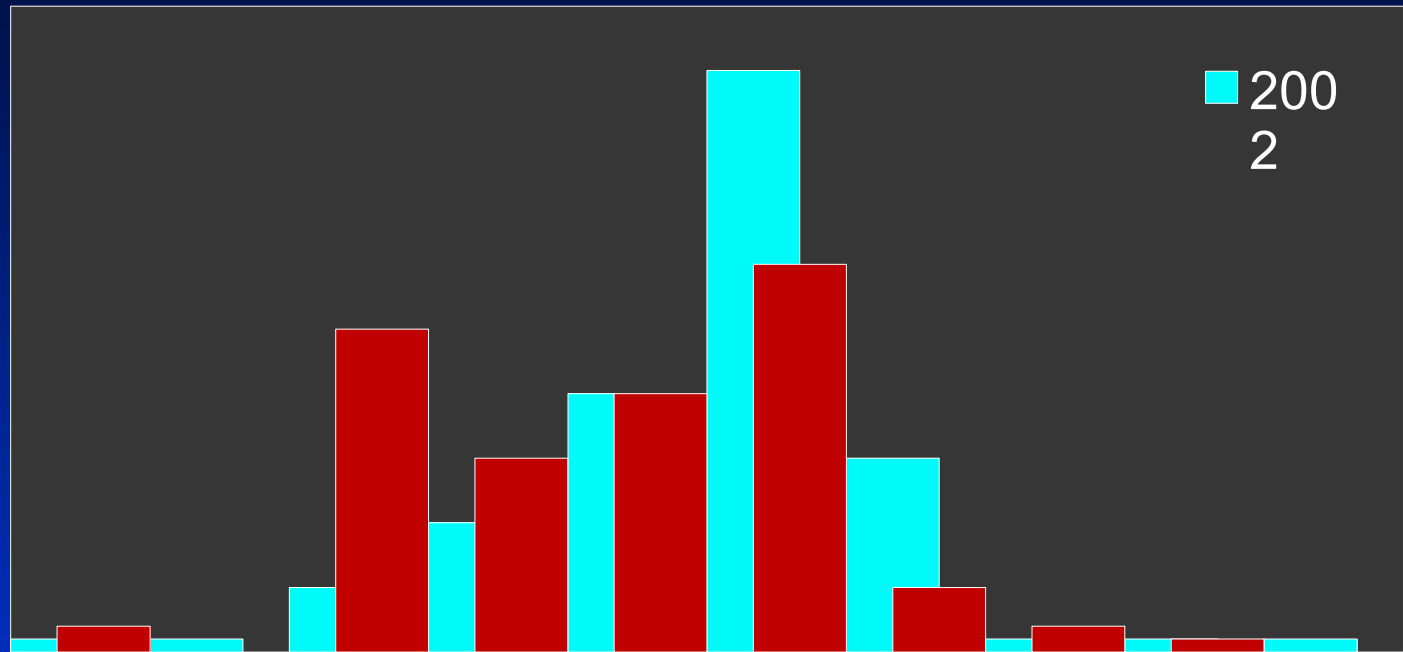
THE SECOND WAVE OF HCV THE MILLENNIAL GENERATION



PREVALENCE OF HCV IS CHANGING TWO WAVES DISEASE



PREVALENCE OF HCV IS CHANGING TWO WAVES OF PATIENTS



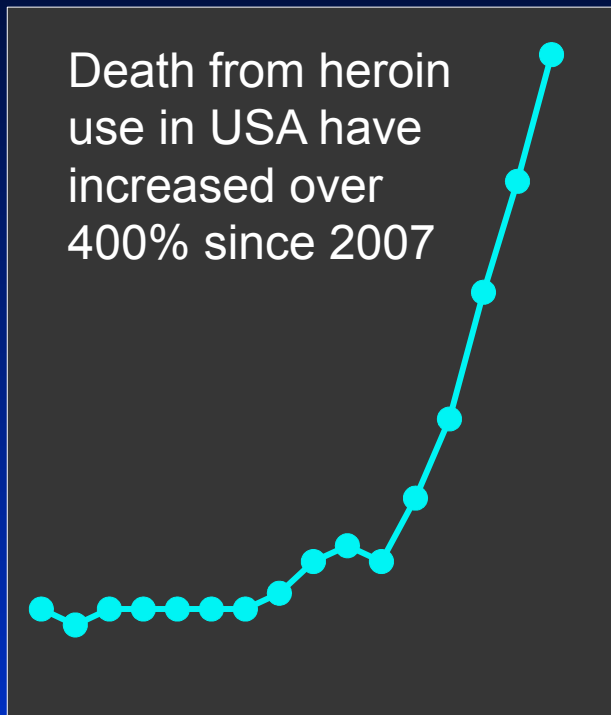
THE EPIDEMIC OF IV DRUG USE

HISTORICAL NOTES

- The euphoric effects of the opium poppy have been known for thousands of years
- Written accounts of death from overdose and addiction date to the 15th century
- The British fought 2 wars with the Chinese in the 1890s over the right to trade opium
- Heroin synthesized from opium in 1874 and marketed as a cough suppressant and non-addictive form of morphine
- Opiates regulated and criminalized by many countries and League of Nations 1914-1925

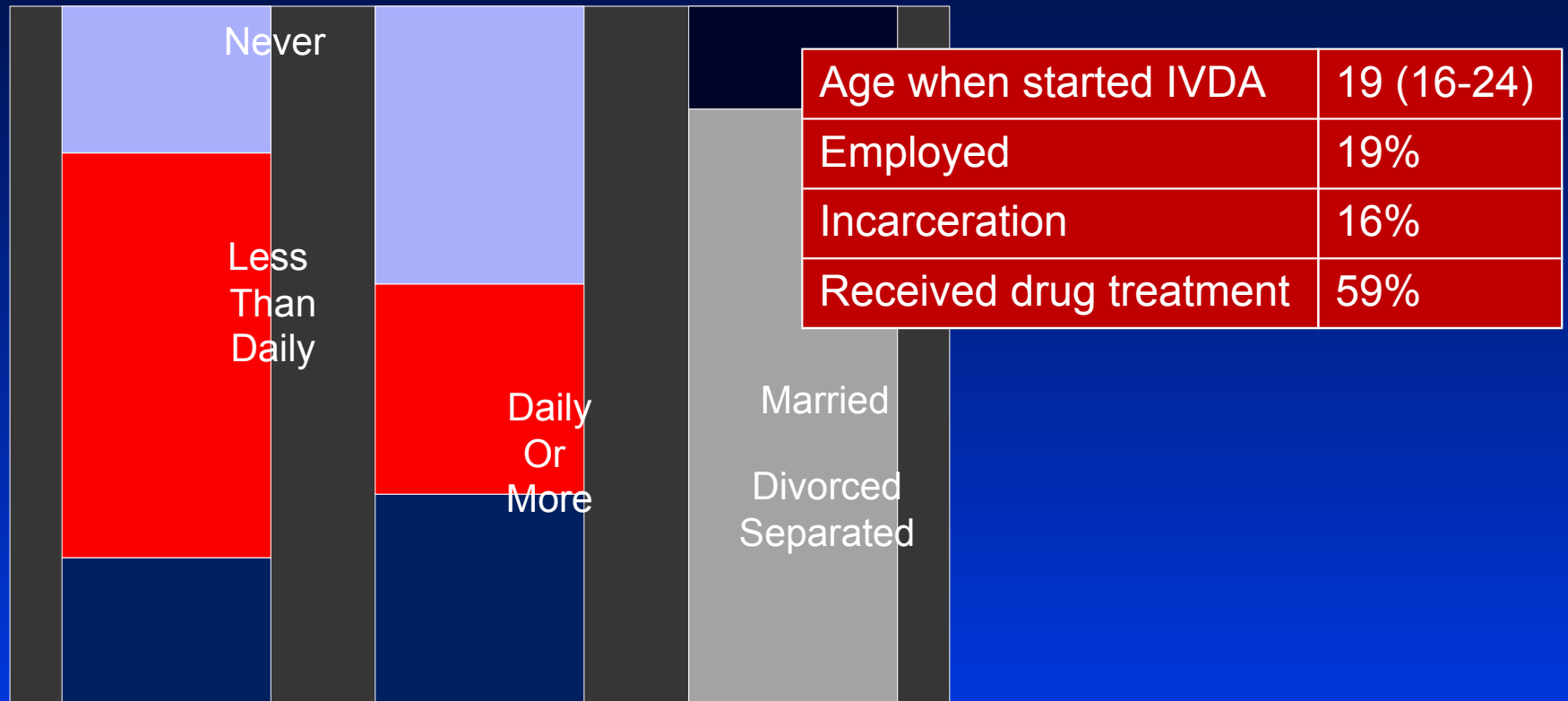


MORTALITY FROM IV DRUG USE WORLDWIDE HEALTH PROBLEM



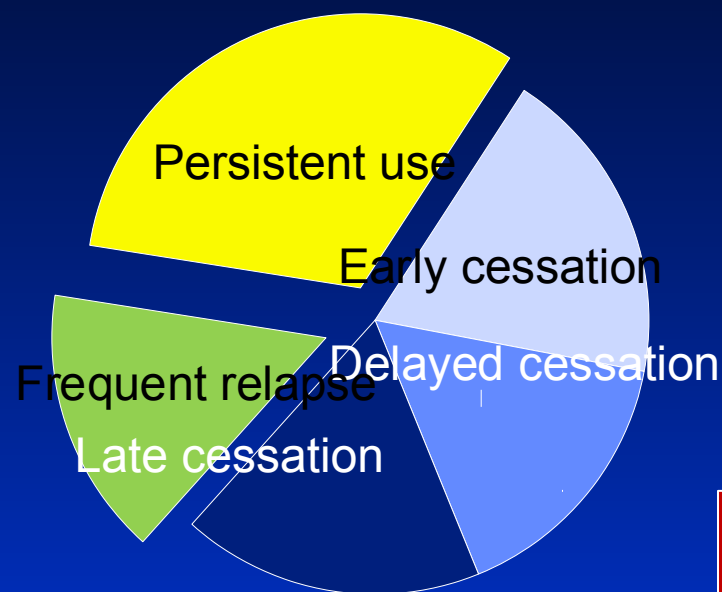
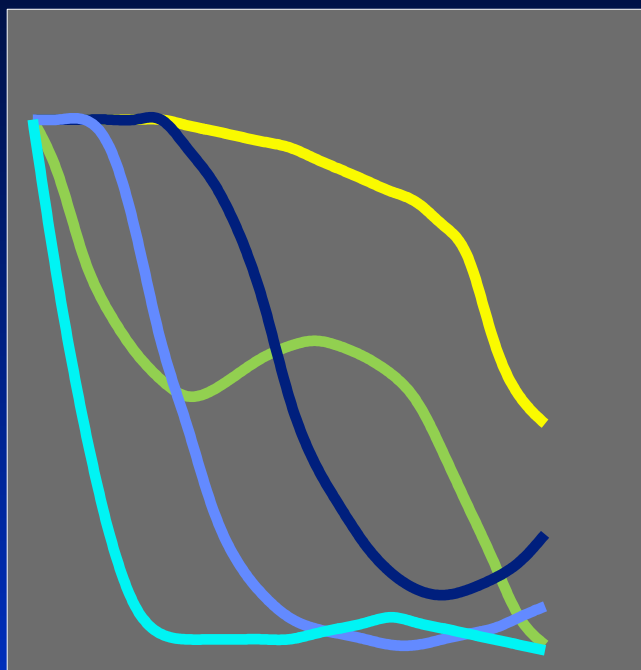
	Mortality Rate /100,000
Asia	5.25
North America	2.6
Western Europe	2.3
Australia	0.7

PWID COHORT CLINICAL FEATURES



PWID

PATTERNS OF DRUG USE



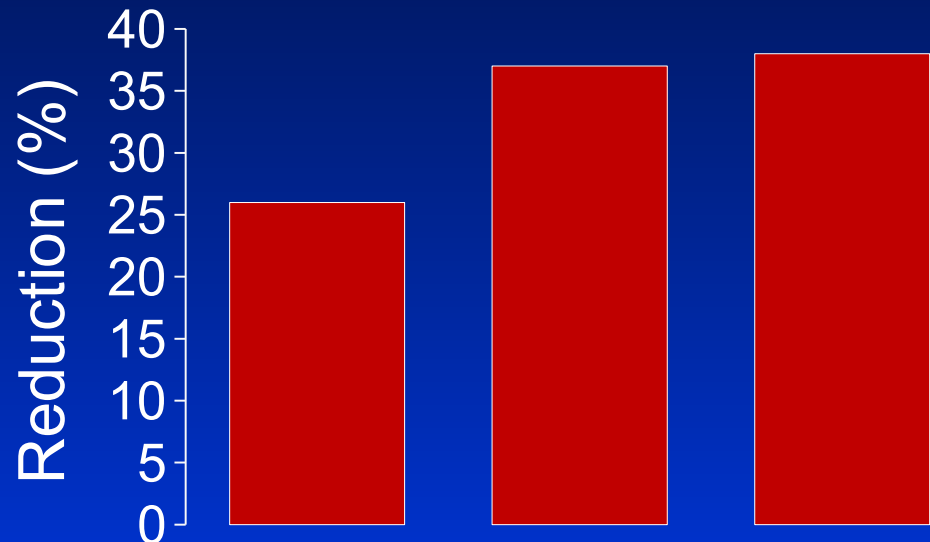
Average duration of
IVDU is 7 years

PWID

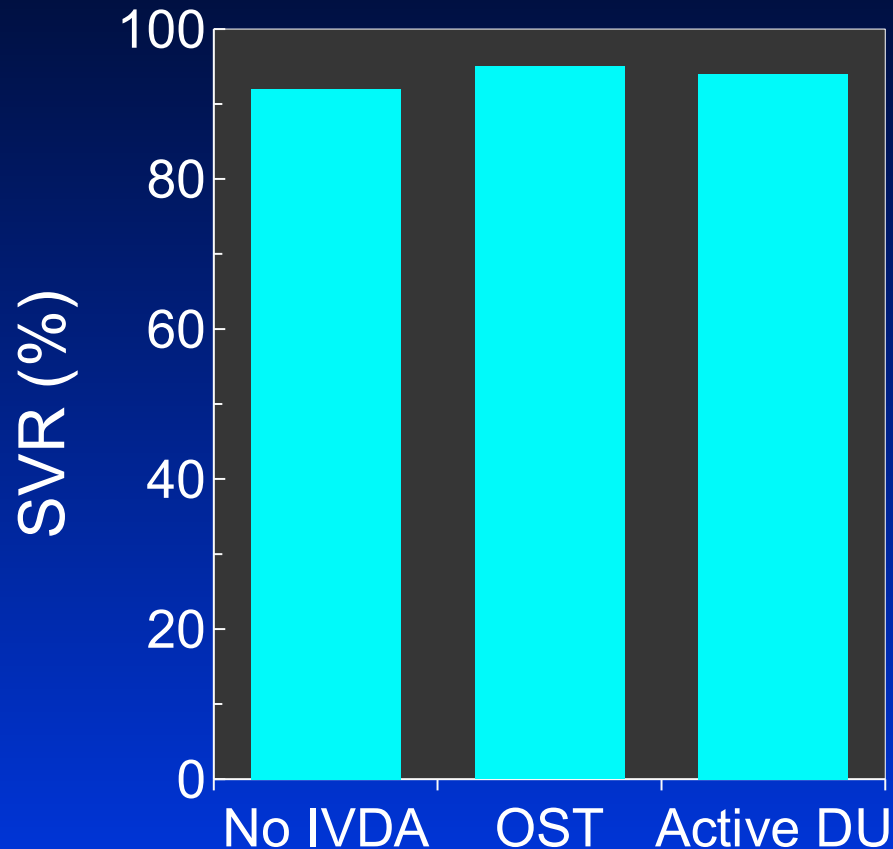
IMPACT OF HCV TESTING

2000 -----> Anti-HCV (+) -----> 2013

- Retrospective cohort study
- 2406 persons
- 43 OST clinics
- Ontario, Canada
- Tested for HCV
- Urine toxicology screen
- 527 (21%) became HCV positive over time
- Knowing they had become HCV positive reduced drug use by 33%

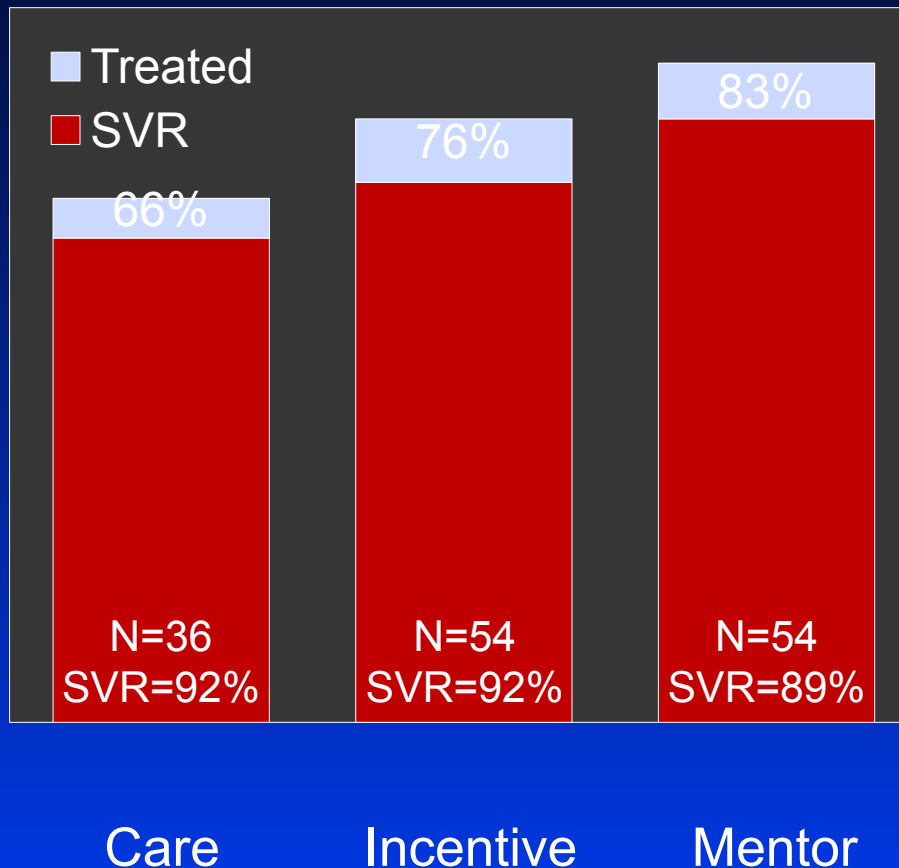


HCV TREATMENT IN PWID SIMILAR RATES OF SVR



- PWID have the same SVR as the general population
- OST
- Active drug use
- About 33% of patients on OST continue to consume drugs
 - 10% cocaine
 - 25% Opiates

HCV TREATMENT IN PWID INNER CITY UNDERSERVED

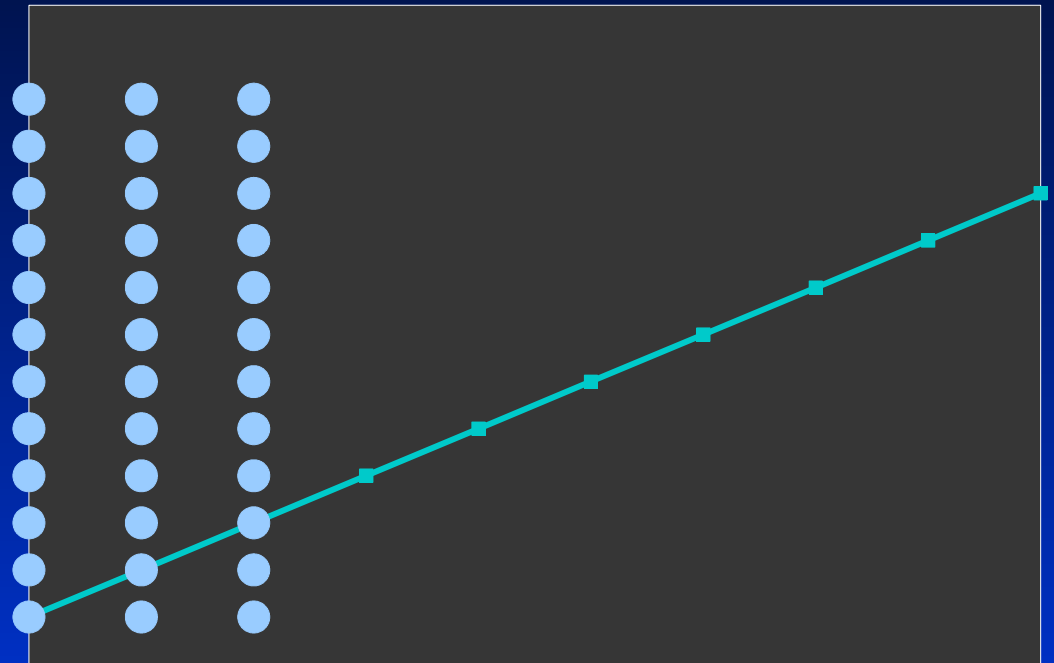


- The most important factor in determining if a patient can be cured is their motivation to initiate anti-HCV therapy
- SVR/cure is identical regardless of the mechanism of support/motivation
- Cure is slightly lower than is population

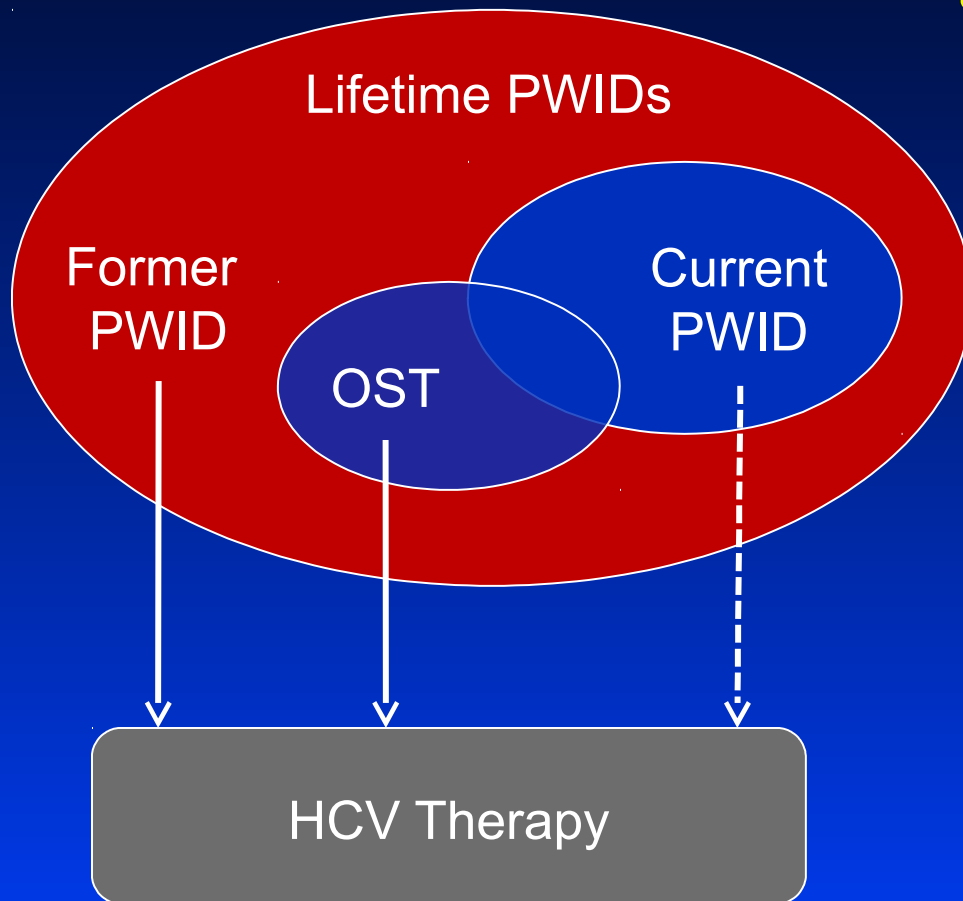
TREATMENT OF HCV IN PWID

RECURRENCE OF HCV

Recurrence
Risk Factors:
IVDA
Age <30 yr
< Education



PWID POPULATION TREATMENT OF HCV



- Treating current PWID
 - Reduces HCV in PWID pool
 - Reduces the risk to new PWID
 - Ignores the morbidity and mortality associated with IVDA
- PWID have 2 diseases
 - HCV
 - IVDA
 - We should not ignore IVDA and focus only on treating HCV

THE HCV EPIDEMIC COMPARING WAVES

	First Wave	Second Wave
Number of persons	Millions	Thousands
Description	Baby Boomers	Millennials
Current age (years)	50-75	20-30s
Mode of infection	Medical care Drug use	Drug use
Alcohol abuse	Moderate	Low

THE HCV EPIDEMIC

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Alcohol abuse	Moderate	Low
HCV testing	NA for decades	Readily available
Curative treatment	NA for decades	Readily available
At risk for cirrhosis	33-50%	Not significant

THE NEXT WAVE OF HCV SUMMARY

The first wave of HCV

Occurred in the era of “Let It Be”

Blood transfusions were the cause of the fear

That accounted for over 200,000 infections per year

Until 1990 when the virus was found

And the numbers of cases plunged to the ground

THE NEXT WAVE OF HCV SUMMARY

But by then it was too late

Millions were cast to their fate

Without treatment there was cirrhosis, liver failure,
cancer and then checkmate

Until the date

We added DAAs to the plate

THE NEXT WAVE OF HCV SUMMARY

The second wave began about 2005
When the epidemic of drug use came alive
A global problem with nowhere to hide
For the millennials who took the 7 year ride
They risked it all, and those who survived
Had Hepatitis C was their consolation prize

THE NEXT WAVE OF HCV SUMMARY

The PWID from today

Can all be cured with a DAA

And for the PWID whose habit will just not relent

The risk of recurrence is about 10%

Should we withhold therapy until they repent

Or is reducing disease burden money well spent

THE NEXT WAVE OF HCV SUMMARY

So what we can clearly see

Is that the second wave of HCV

Will not suffer the same mortality

Cirrhosis and cancer seen in the wave of the boomer

Will not occur because we can treat decades sooner