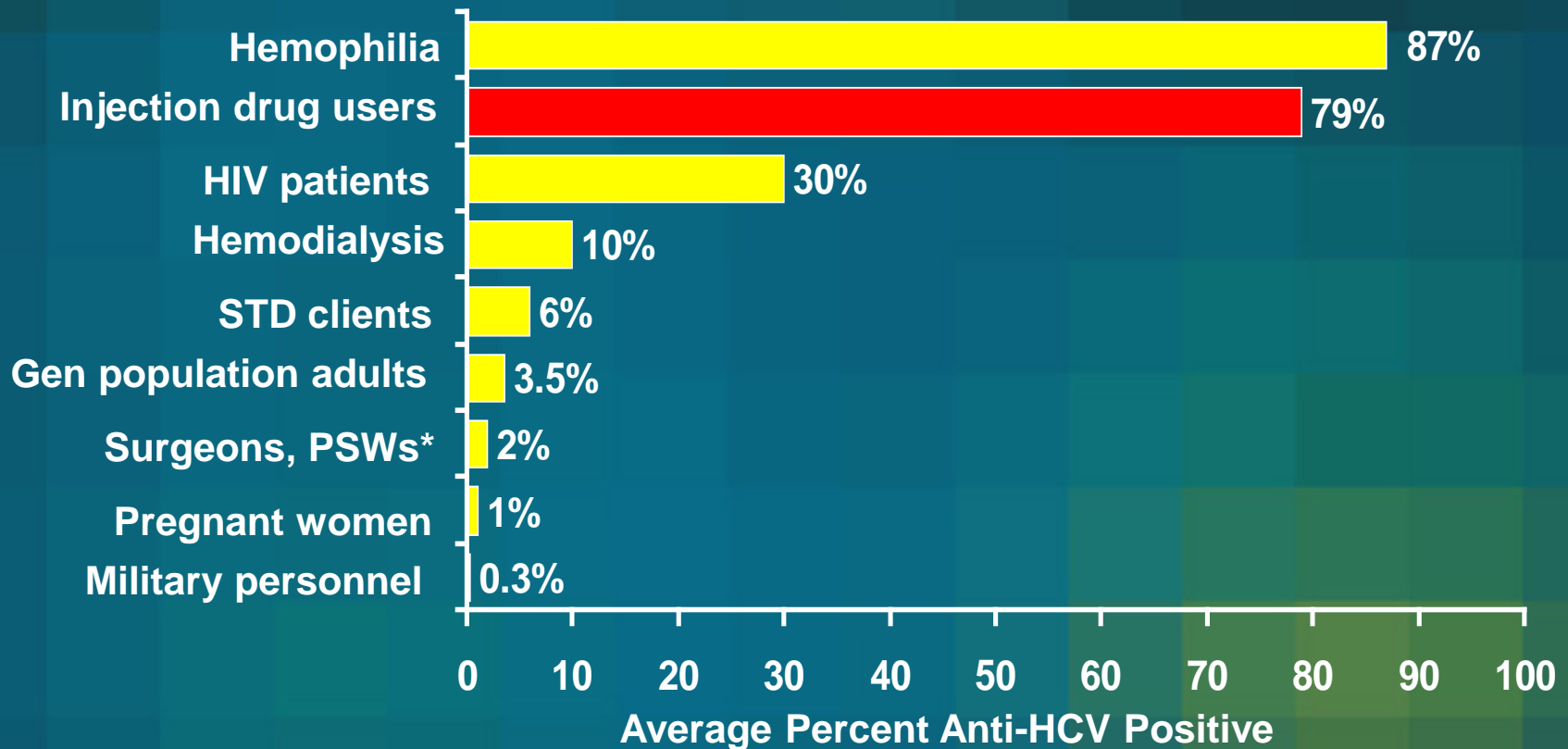


The Challenge of Addiction and Hepatitis C

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OASIS

HCV Prevalence by Selected Groups United States



* PSWs (personal-service workers) are individuals whose occupations involve close personal contact with clients (e.g., hairdressers, barbers, estheticians, cosmetologists, manicurists, pedicurists, massage therapists).

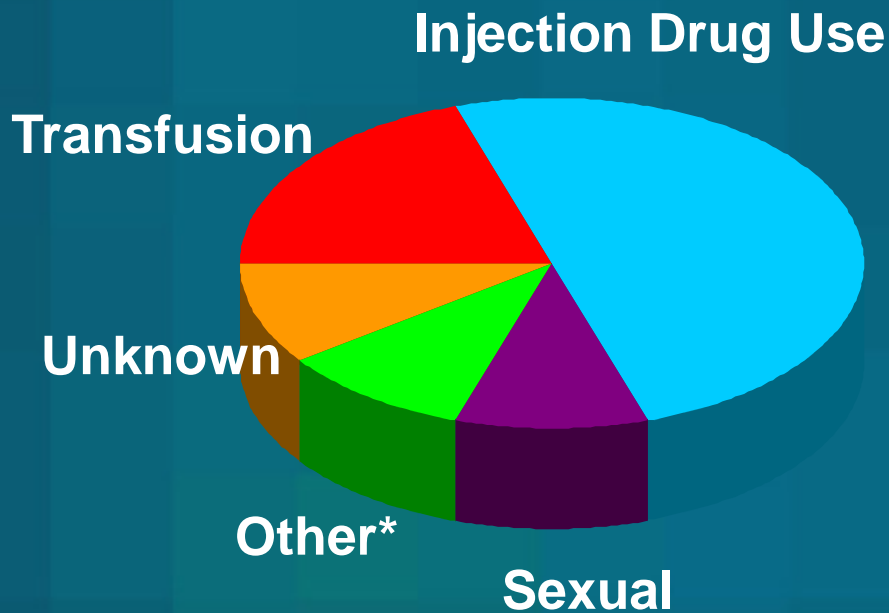
Adapted from CDC Hepatitis Slide Kit <http://www.cdc.gov/ncidod/diseases/hepatitis/slideset>.

Injecting Drug Use and HCV Transmission

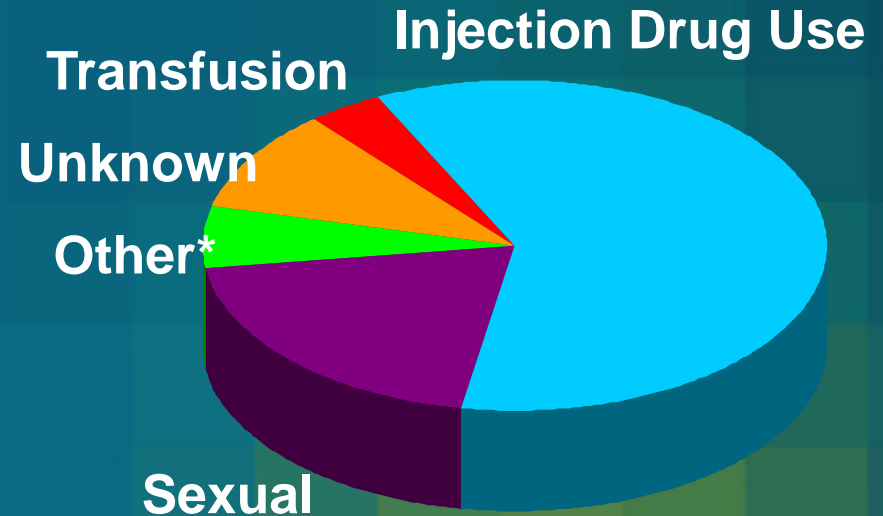
- **Highly efficient**
 - Contamination of drug paraphernalia, not just needles and syringes
- **Rapidly acquired after initiation**
 - 30% prevalence after 3 years
 - >50% prevalence after 5 years
- **Four times more common than HIV**

Relative Importance of Risk Factors for Hepatitis C

Remote (>15 yrs ago)



Recent (<15 yrs ago)



* Nosocomial, occupational, perinatal

"Drug Users" are heterogeneous

Heroin

Cocaine

Methamphetamine

Cannabis

Polysubstance use

Regular use

Intermittent use

Binge use

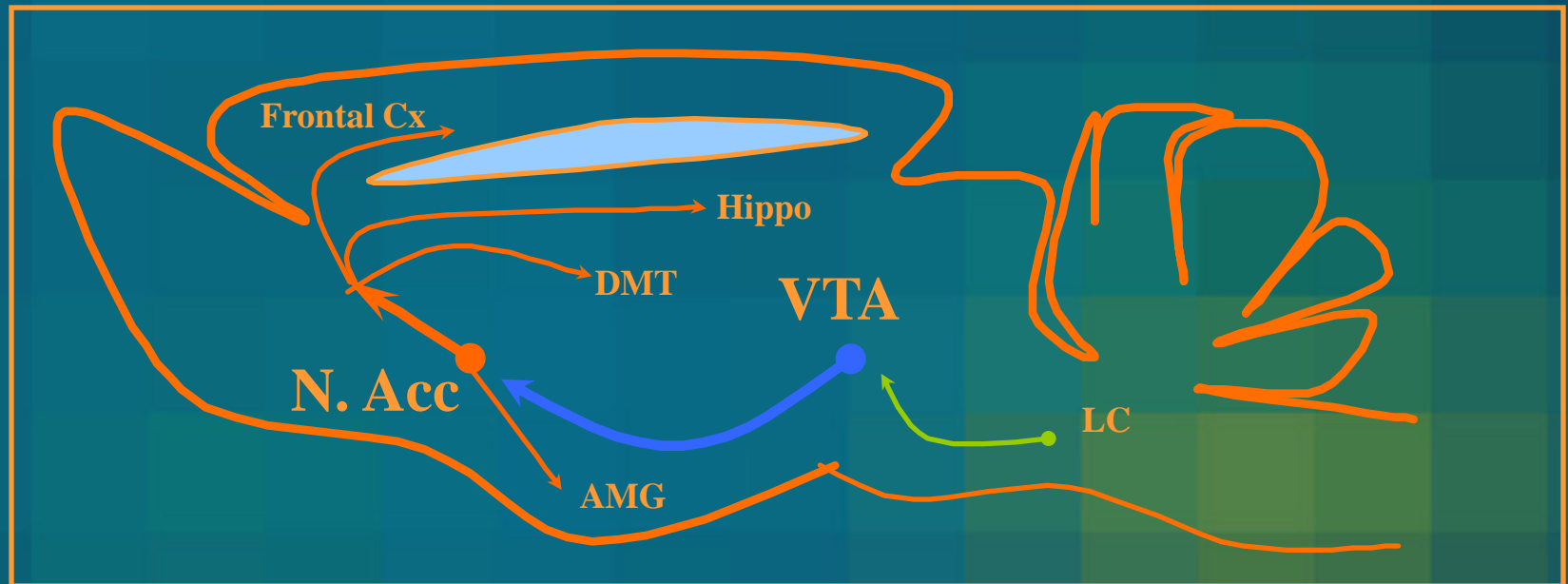
Injection

Intra-nasal

Oral

The evidence for addiction as a brain disease

Dopamine release in the Nucleus Accumbens is a common characteristic of virtually every drug of abuse.



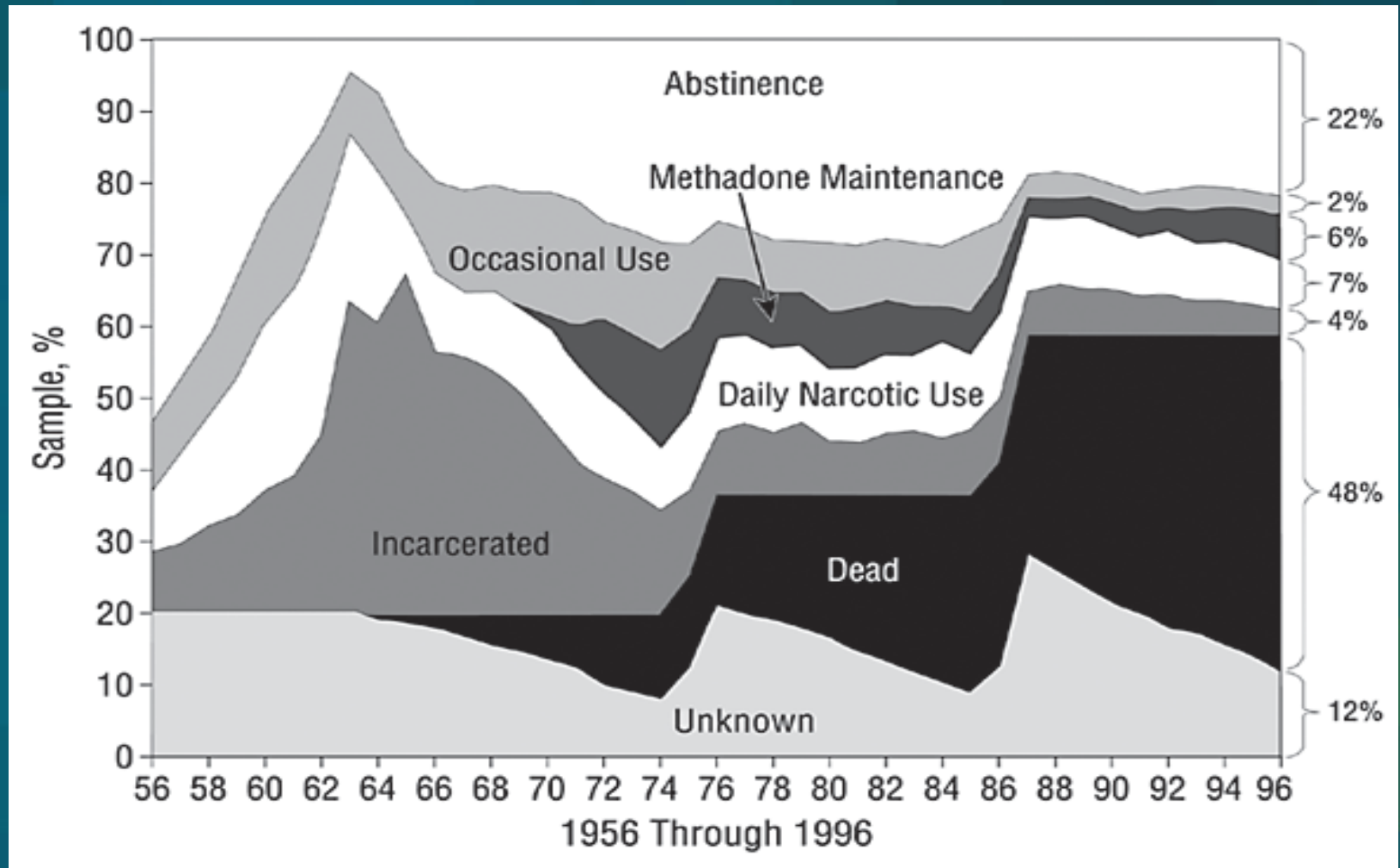
Treatment options for depression

- Tricyclics (TCAs)
 - Amitriptyline, imipramine, nortriptyline, etc.
- Monoamine oxidase inhibitors (MAOIs)
 - Phenzelzine, tranylcypromine, isocarboxazid, etc.
- Selective serotonin reuptake inhibitors (SSRIs)
 - Fluoxetine, sertraline, paroxetine, fluvoxamine, citalopram, etc.
- Serotonin antagonists
 - Trazodone, nefazodone
- Other agents
 - Bupropion, venlafaxine, mirtazapine, reboxetine, etc.

Treatment options for addiction

- Alcohol
 - Disulfiram, acamprosate, naltrexone
- Opiate
 - Methadone, buprenorphine, naltrexone
- Stimulants
 - ?

Heroin-associated Mortality



Hser, Y. I., et al. (2001) *Arch Gen Psychiatry*, 58, 503-8.

Progression of Liver Fibrosis Among IDUs With Chronic HCV

- 119 prospectively followed IDUs
- Demographics
 - 96% were African American
 - 97% HCV genotype 1
 - 27% HIV-infected
 - Median age 42 years
 - Significant fibrosis at biopsy:



- After 4.2 years median follow-up 21% had progression of fibrosis

Significant fibrosis was defined as modified Ishak score 3 or greater, and progression of fibrosis was defined as an increase 2 or more units or clinical evidence of end-stage liver disease.

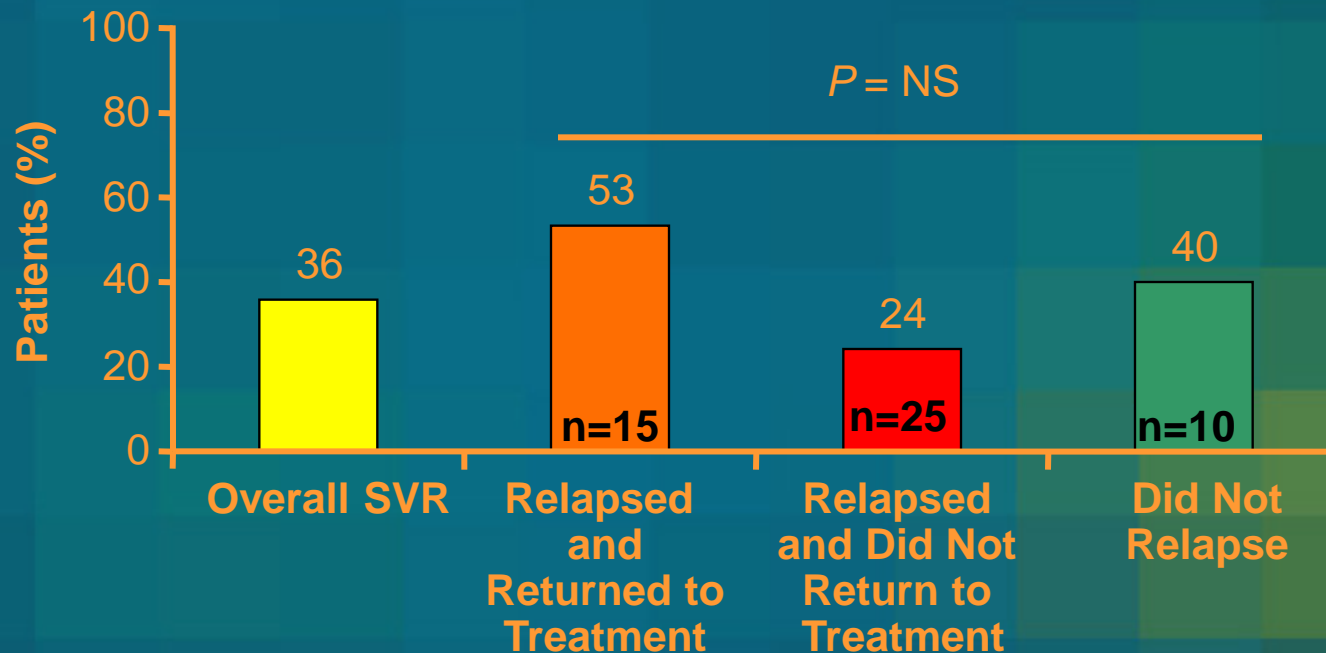
“HCV therapy has been successful even when the patients have not abstained from continued drug or alcohol use... Thus, it is recommended that treatment of active injection drug use be considered on a case-by-case basis, and that active injection drug use in and of itself not be used to exclude such patients from antiviral therapy.” --NIH Consensus Statement on HCV, 2002

The data

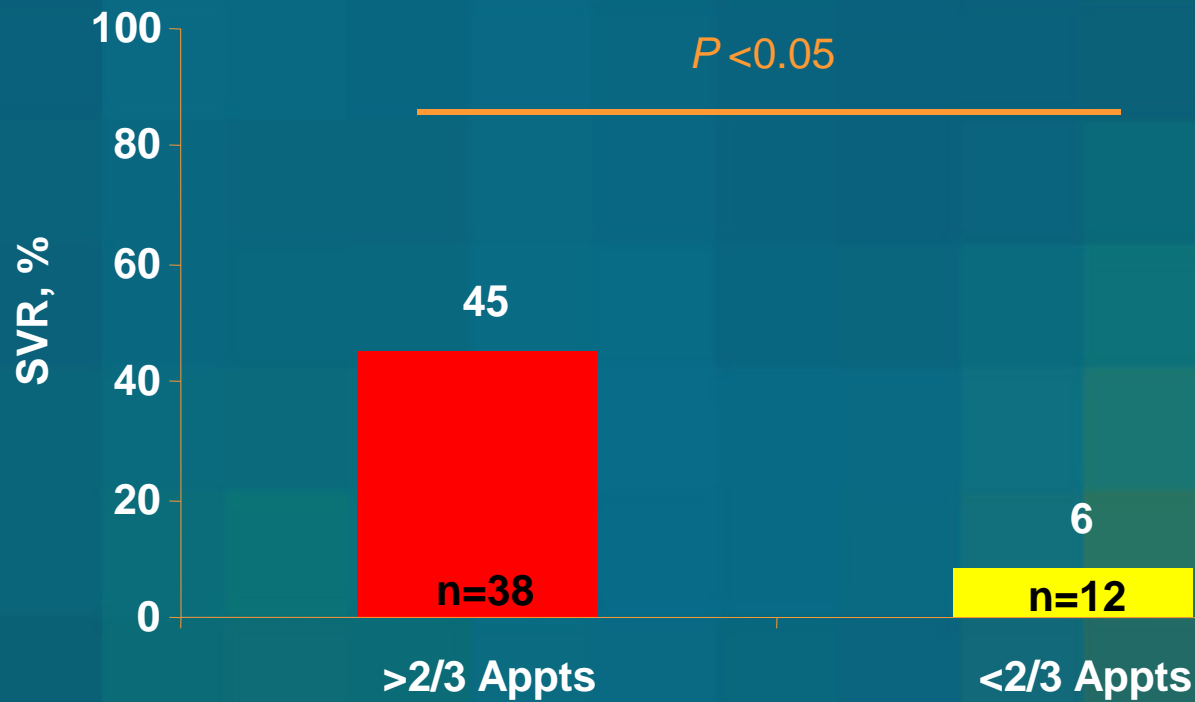
As it exists....

HCV Treatment in Methadone Patients

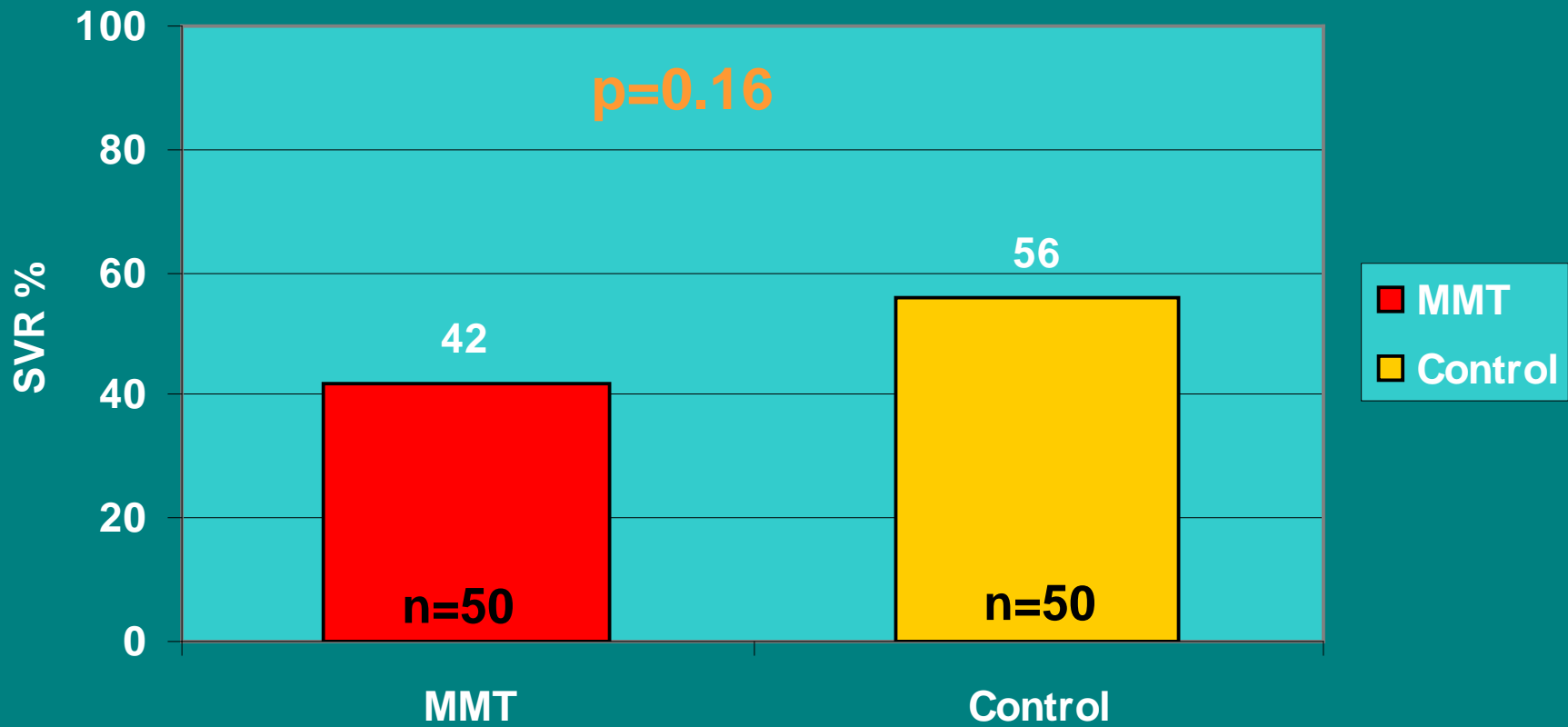
SVR Rates in Injection Drug Users in Detox (N = 50)



Attendance predicts SVR

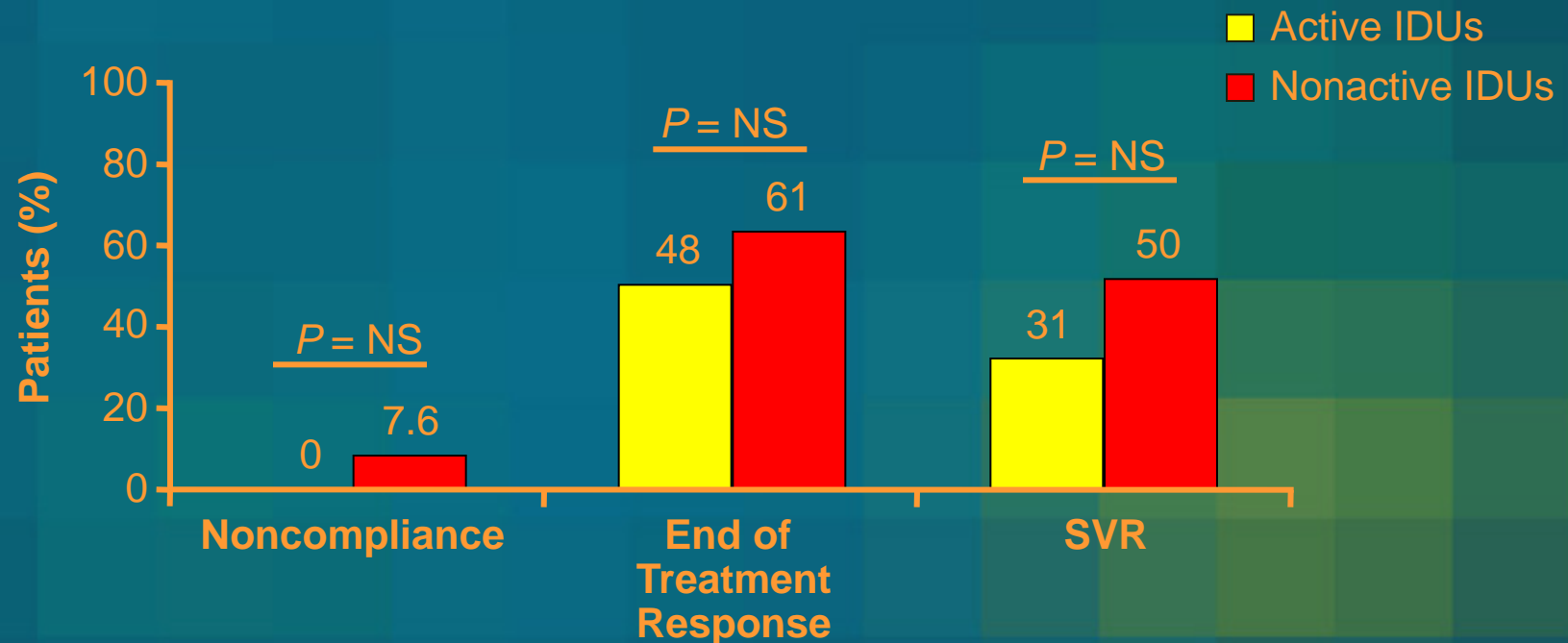


Mauss, et al. (Hepatology, 2004)

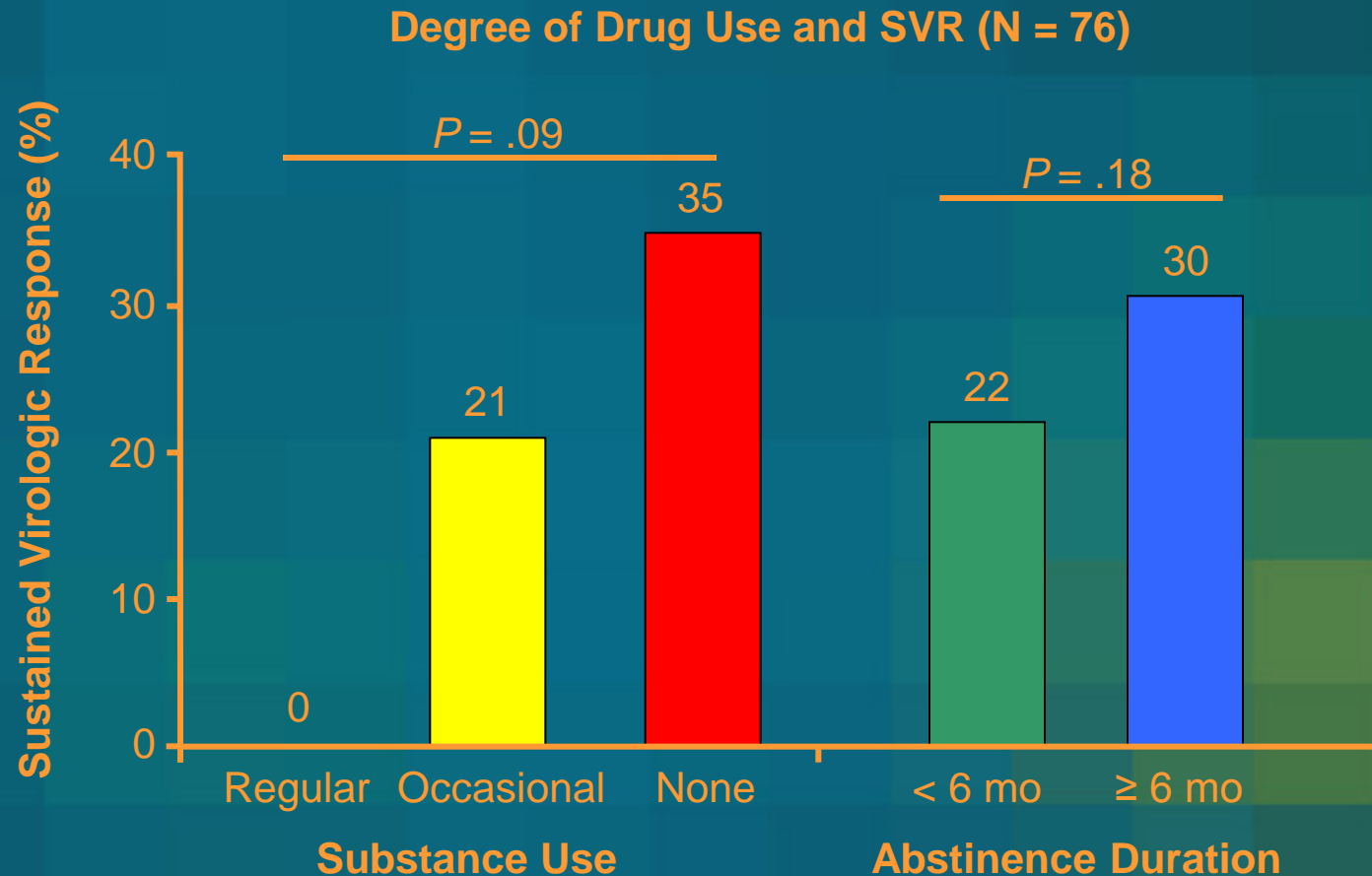


HCV Treatment in the Setting of Active Drug Use

HCV Treatment Outcomes: Active IDUs vs Nonactive IDUs (N = 406)



SVR Rate May Increase with Abstinence



Protective Immunity?

Patients with ongoing or prior HCV infection may develop immunity that protects against further infection with HCV despite repeated exposure

- Dove L, Phung Y, Bzowej N, Kim M, Monto A, Wright TL. Viral evolution of hepatitis C in injection drug users. *J Viral Hepat.* 2005 Nov;12(6):574-83.
- Grebely J, Conway B, Raffa JD, Lai C, Kraiden M, Tyndall MW. Hepatitis C virus reinfection in injection drug users. *Hepatology.* 2006 Nov;44(5):1139-45.
- Currie S, Tracy D, Ryan J, Belaye T, Kim M, Monto A. Injection drug users who resolve the HCV virus appear to be protected from reinfection. *AASLD 2006: 167A.*

Current Studies at OASIS

A Brief HCV
Prevention
Education
Intervention for In-
and Out-of-
Treatment Drug
Users





Protocol

- **Two test populations, two video curricula:**
 - **Out of treatment drug users at syringe exchange, n=100**
 - **Brief, 7-minute peer-based prevention education video**
 - **In-treatment drug users enrolled in methadone maintenance, n=450**
 - **30 minute peer based education video**
 - **Two viewing formats: single session vs. 4 session**

Protocol

- **Demographic/risk behavior questionnaire**
- **Randomization:**
 - Usual care vs. video intervention
 - SEP 1:1
 - MMT 1:1:1 (1 usual care: 1 single session: 1 4-part viewing)
- **KAM test (Knowledge/Attitudes/Motivations)**
 - Baseline
 - Immediate post video
 - Week 4
 - (Week 8)
 - Week 12
- **Free HCV testing and HAV/HBV vaccinations offered**

Sample Knowledge Questions: SEP

- Which of the following can transmit HCV infection? (MC)
- How often is hepatitis C passed on by sex?
 - Never/rarely/frequently/DK
- Which of the following can you get vaccinated for?
- Most people with hepatitis C don't need treatment: T/F/DK
- Most people with HCV get yellow jaundice: T/F/DK
- Most people with hepatitis C will die from it: T/F/DK

Preliminary Results

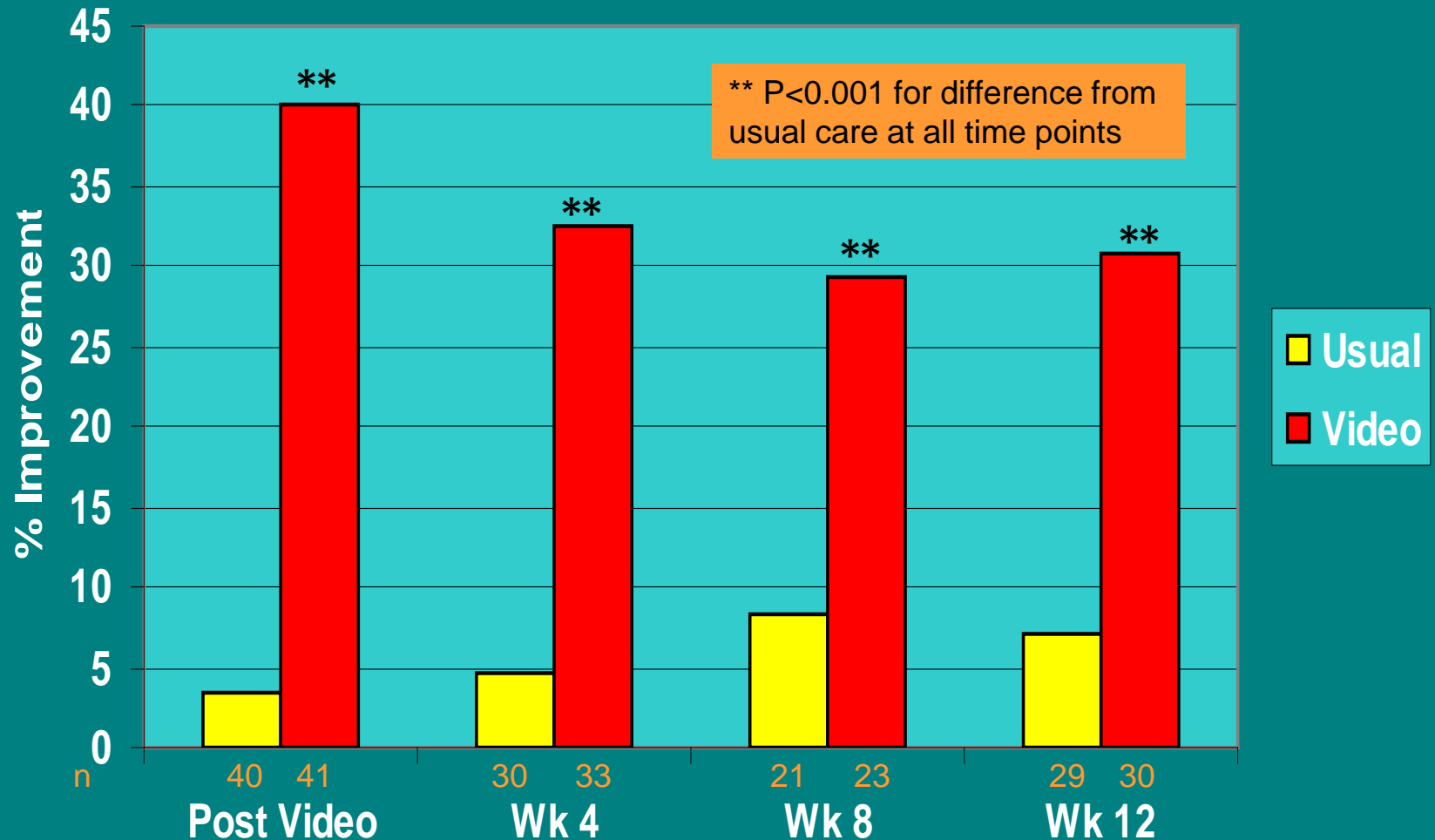
Demographics

	MMT	SEP
Enrollment	282/450	100/100
Age (x)	46	43
White (%)	42	42
Black (%)	41	50
Latino (%)	10	7
< High School	33%	26%
Uninsured	30%	41%
1^o care in ER	23%	42%
Tested for HIV	97%	98%
Tested for HCV	84%	72%
Told HCV+	59%	67%

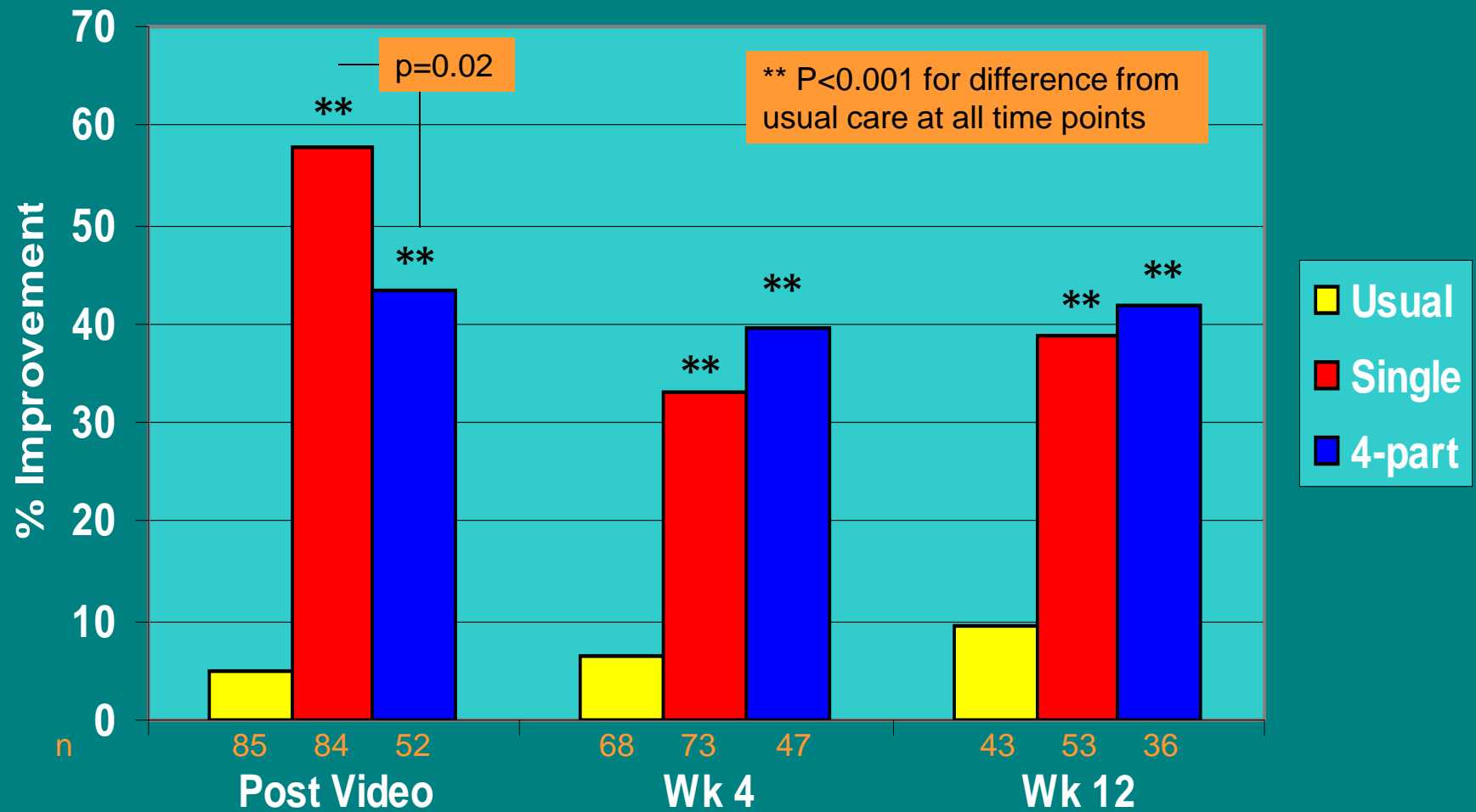
Demographics

	MMT	SEP
HAV Vax	33%	35%
HBV Vax	33%	34%
Active EtOH	51%	73%
Shared works <1yr	17%	25%
Never condom	58%	46%
Always condom	34%	29%
≥3 sex partners <1yr	13%	45%
Prev STD	38%	51%
Tattoo in jail	28%	19%

SEP Knowledge

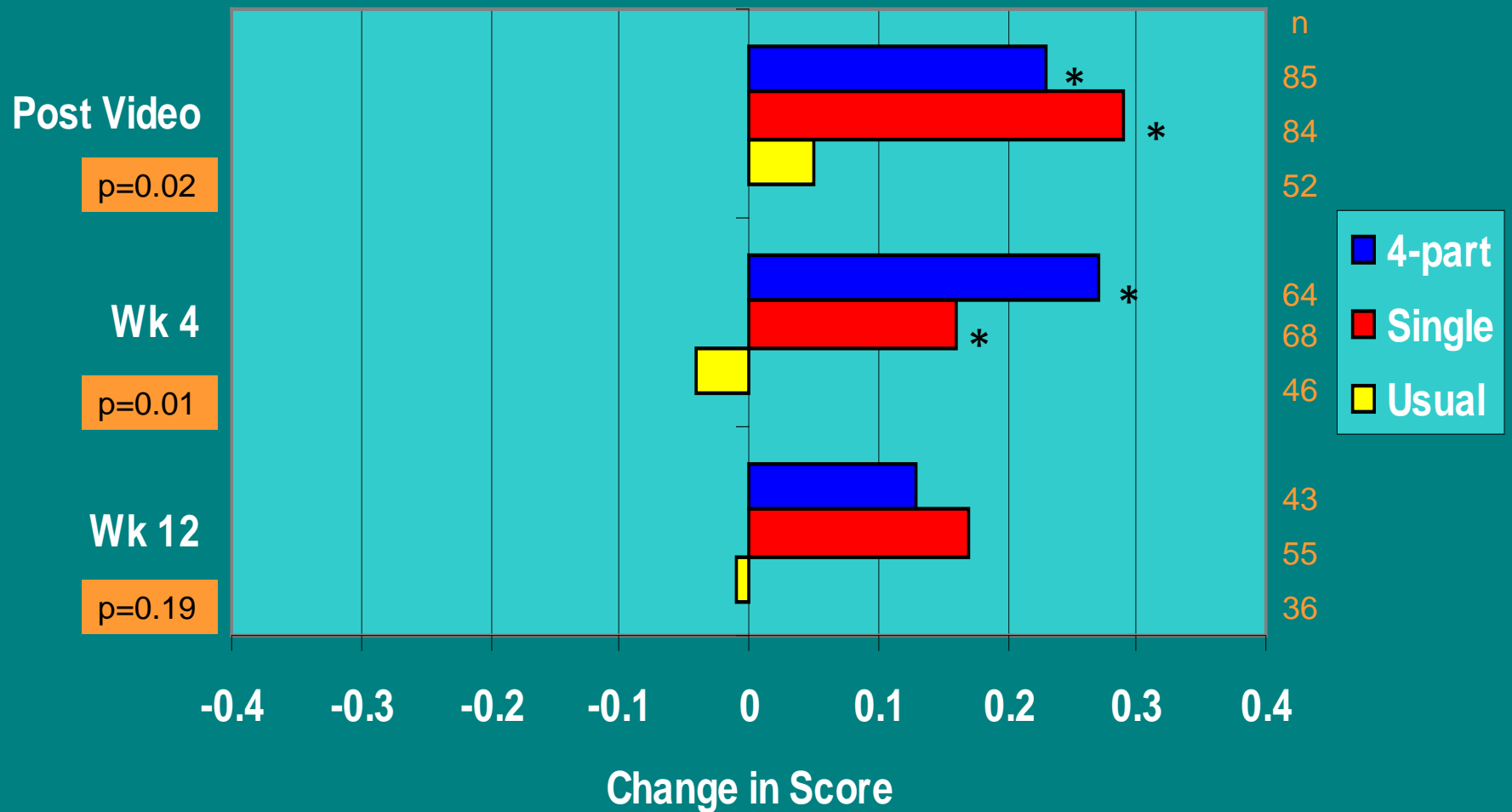


MMT Knowledge Scores



MMT

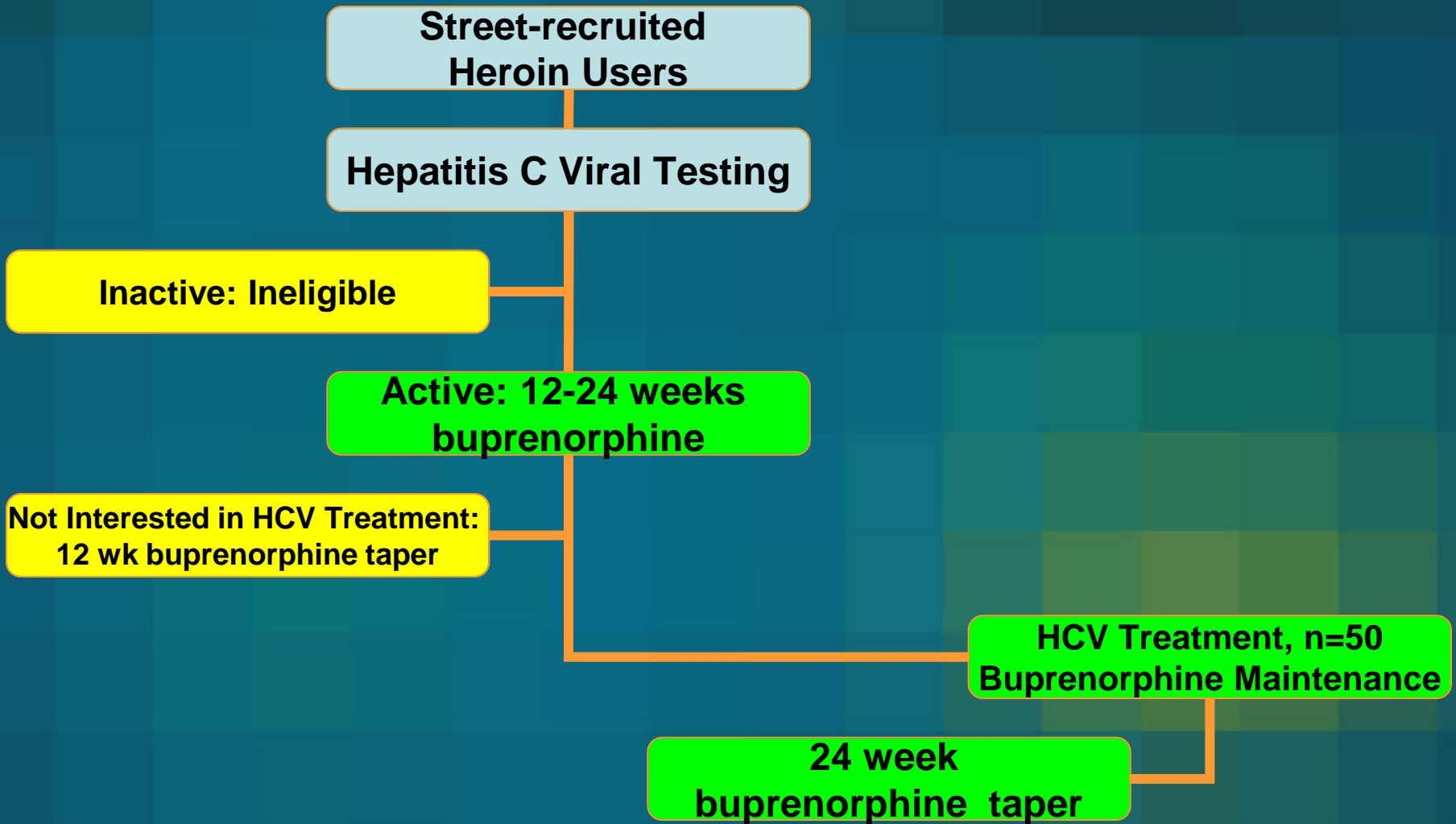
Attitudes/Motivation



Transitioning Street- Recruited Heroin Users to HCV Treatment using Buprenorphine

NIDA DA015629-01

Study Design

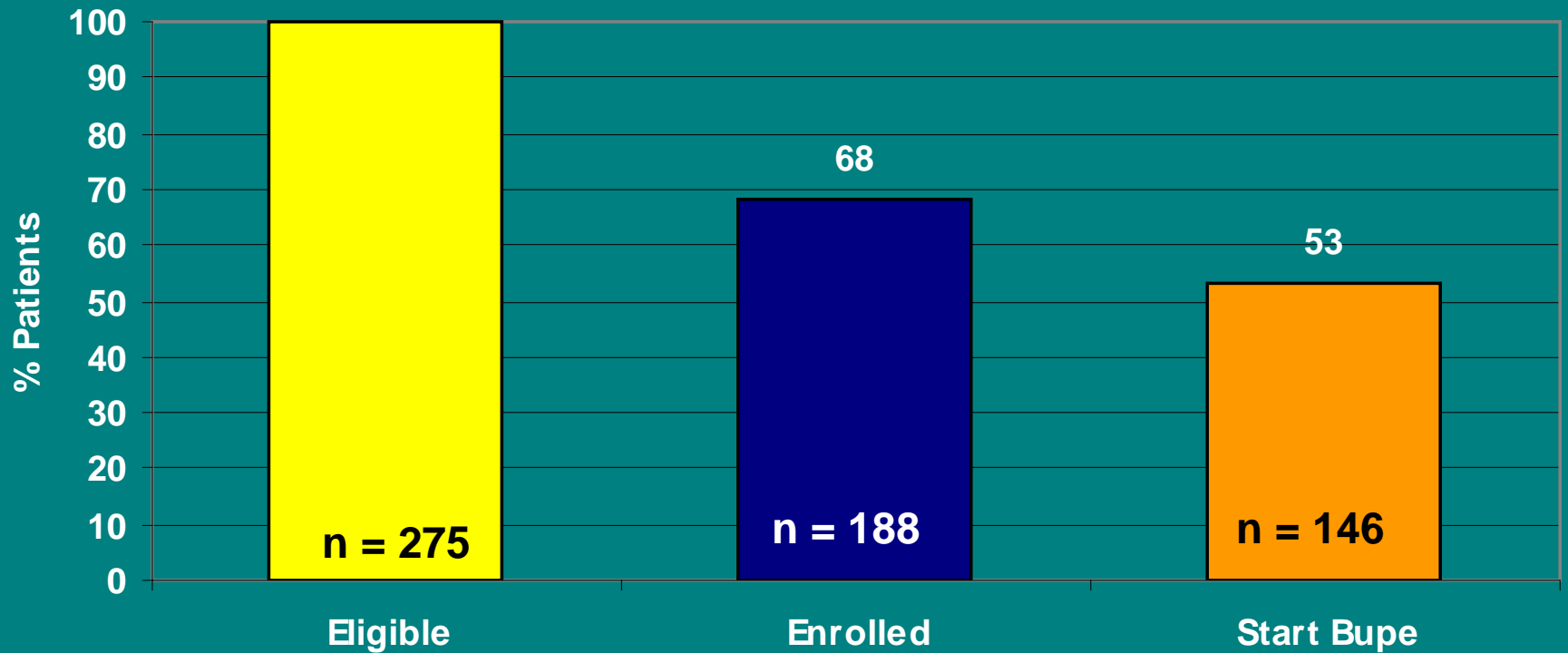


Enrollment

- **All screened = 415**
- **Eligible = 275**
 - **Ineligible = 140 (33%)**
 - **Not viremic = 94 (23%)**
 - **On methadone = 29 (7%)**
 - **No opioid addiction = 17 (4%)**

Relevance

All Screened: n=415



The study sample is representative

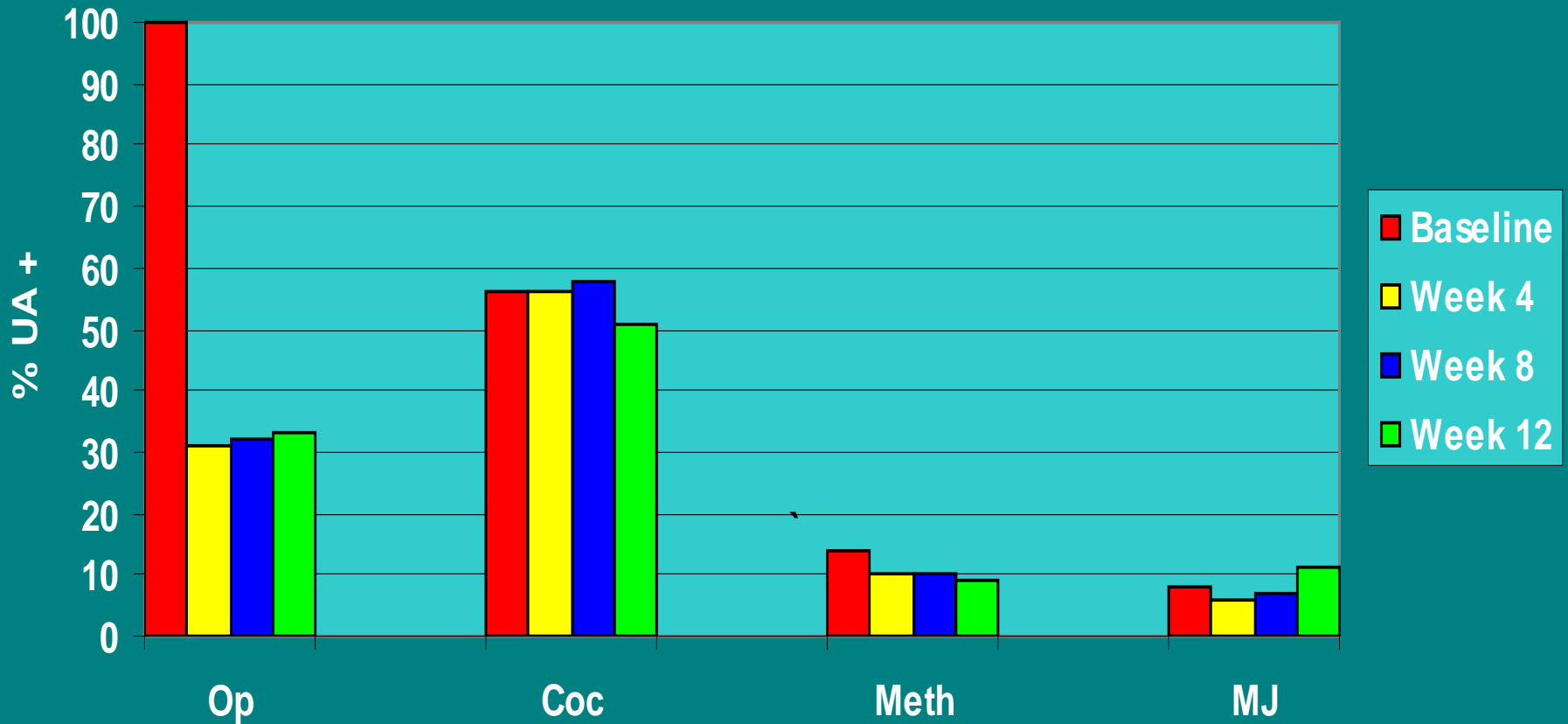
	Screened	Eligible	Enroll	Start Study Meds	P Value
n	415	275	188	146	
Age	46 (20-69)	46 (24-69)	46 (24-64)	46 (24-64)	NS
Male	70.4%	74.9%	73.9%	71.2%	NS
White	34.5%	32.0%	31.9%	33.6%	NS
Black	37.3%	40.0%	39.4%	41.8%	NS
Latino	23.9%	23.6%	23.4%	19.2%	NS

The study sample is representative

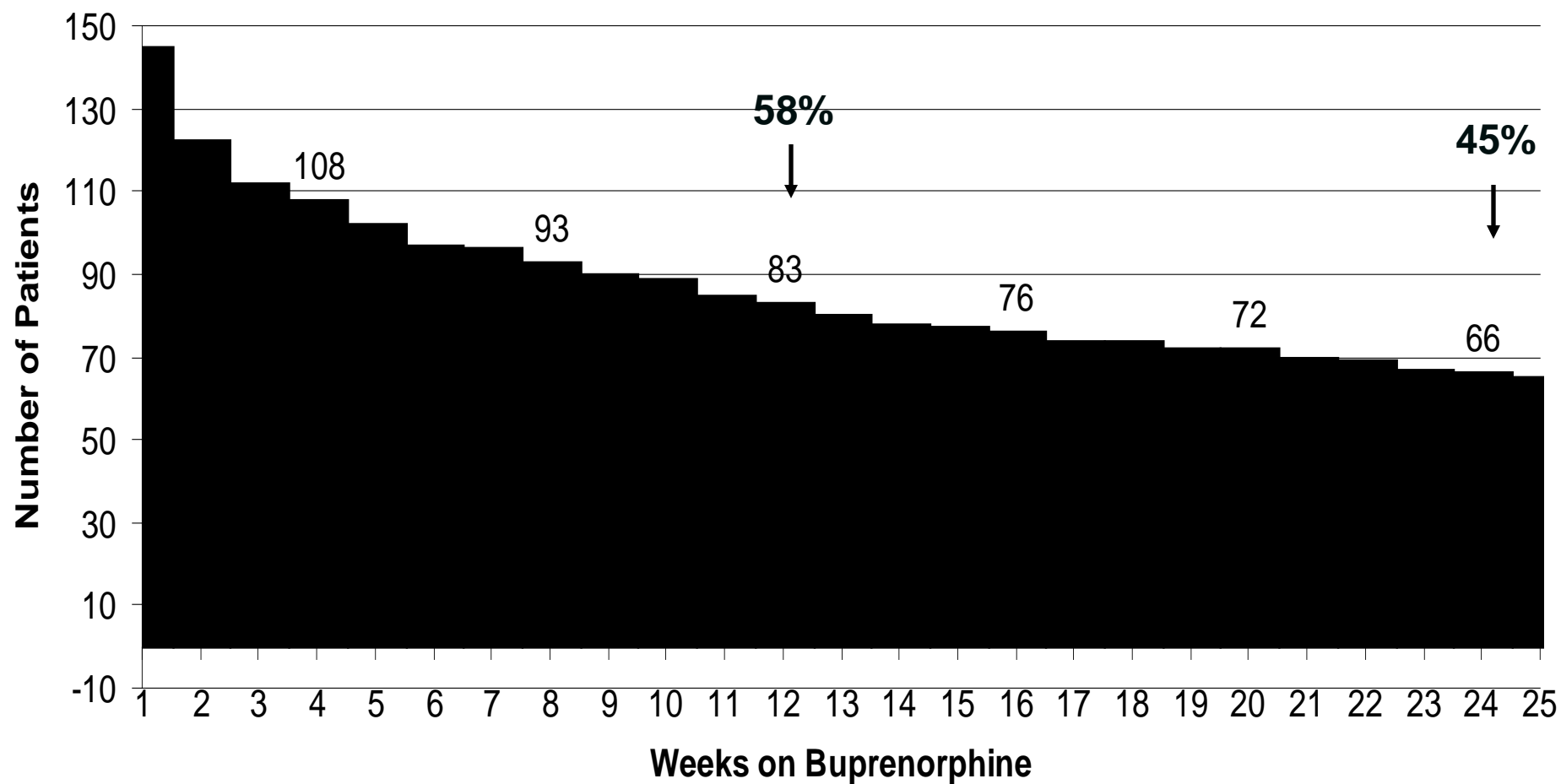
	Screened	Eligible	Enroll	Start Bupe	P Value
Yr. exposed	24	25	25	25	
ALT	46	53	55	54	<0.001*
% Cocaine	47.5	50.6	48.6	50.0	NS
% Meth	15.6	14.9	13.5	13.2	NS
% Alcohol	58.0	50.3	60.1	55.5	NS
Genotype 1	76%	76%	78%	77%	NS

*Significant for the difference between screened and eligible cohorts

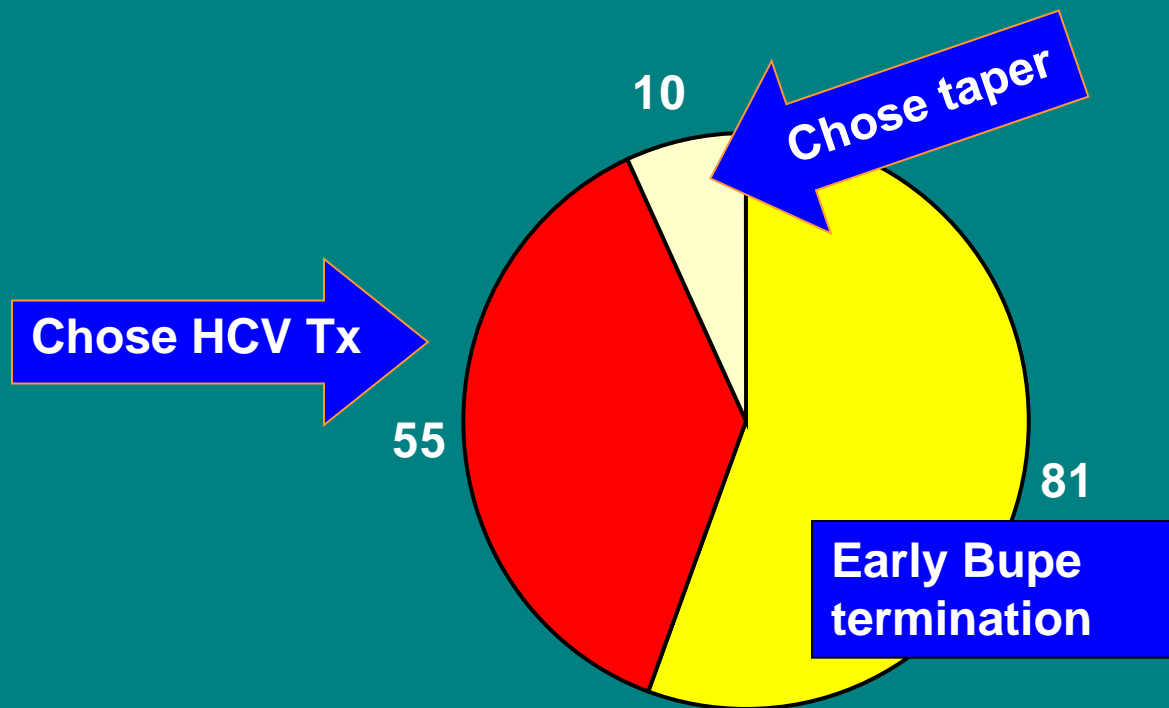
Drug Use Week 0-12



Treatment Retention (n=146)



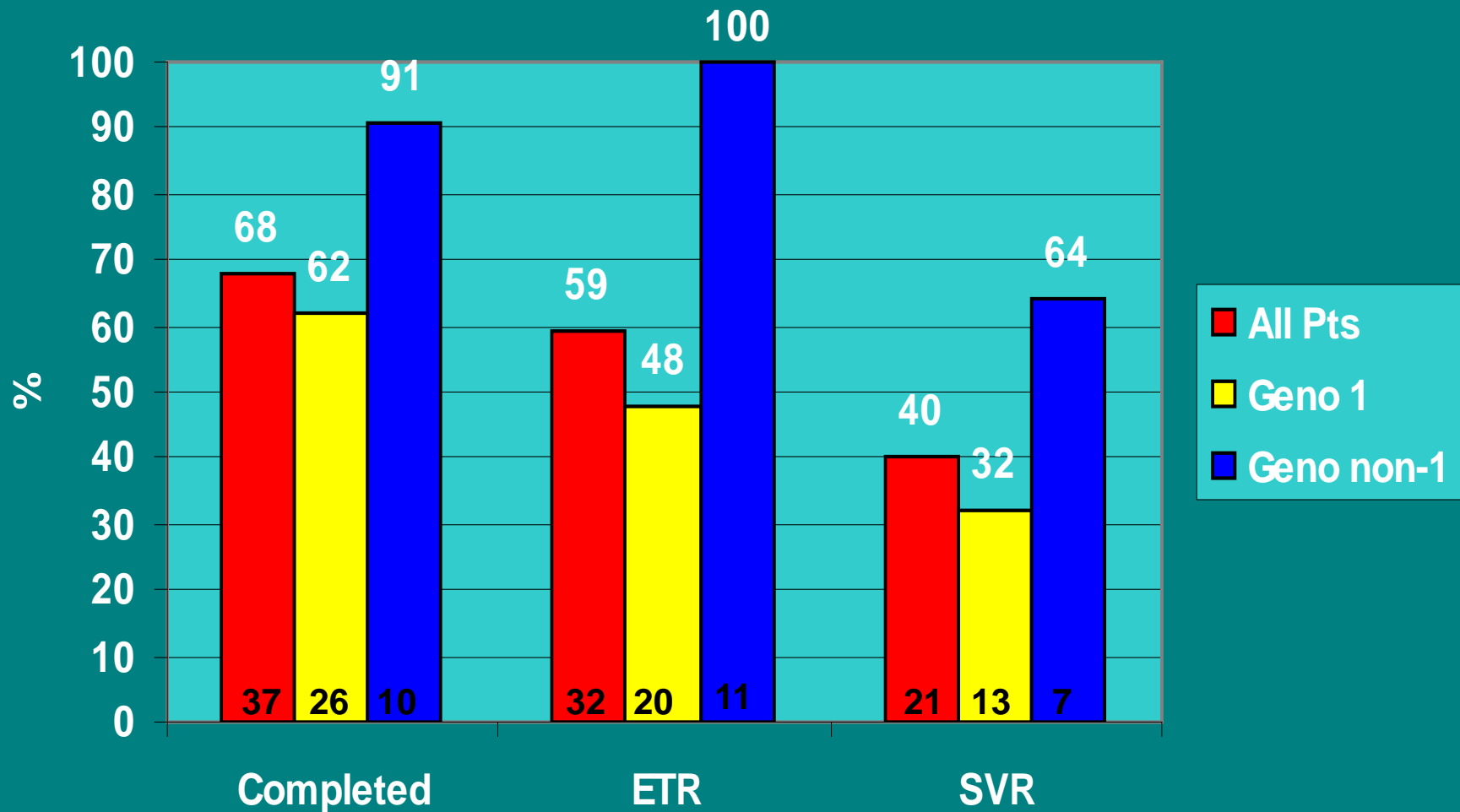
Interest in HCV Treatment (n=146)



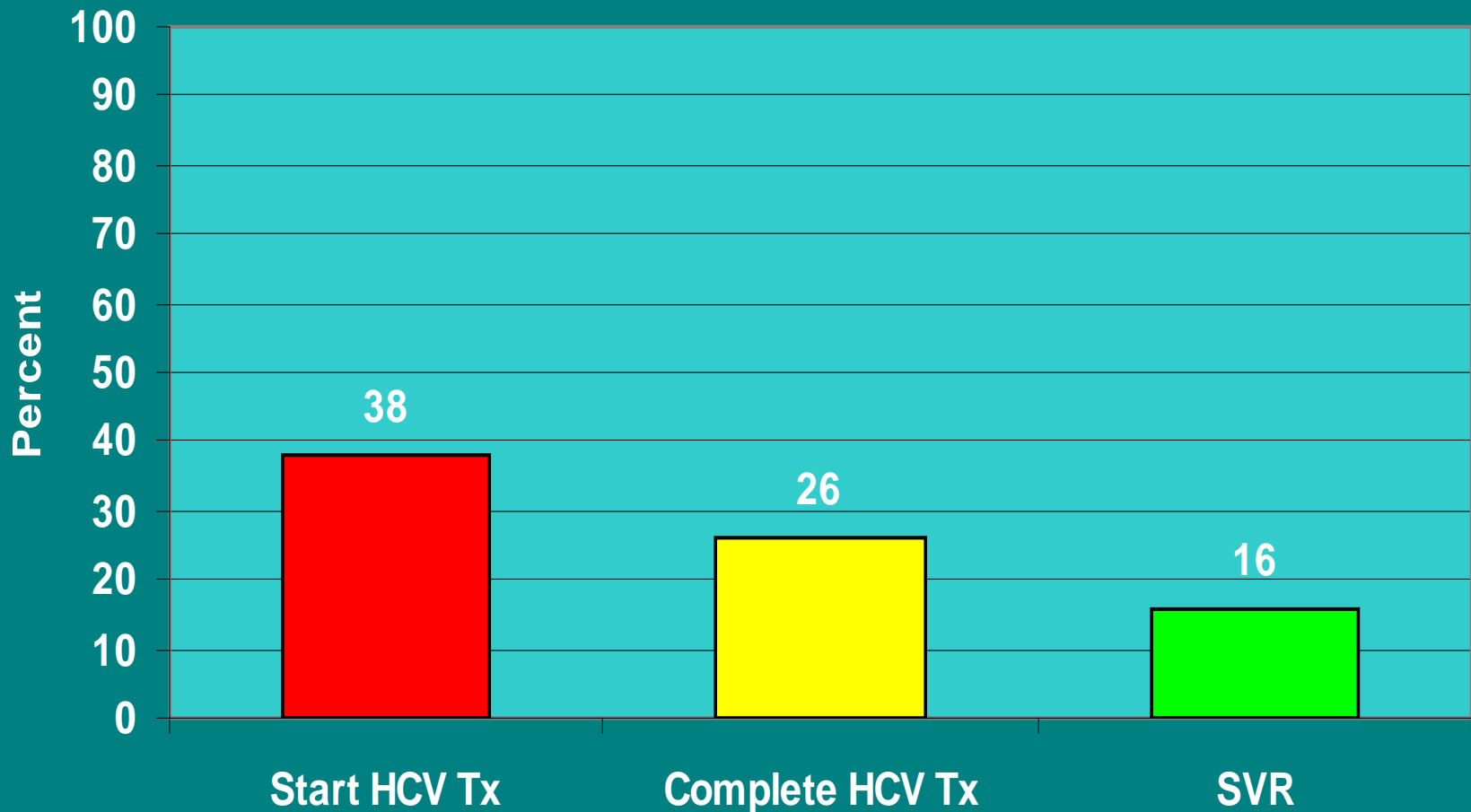
HCV Treatment Outcomes

- Completed treatment, n=37
- Early termination, n=18
 - 3 incarcerated
 - 4 medical
 - 10 FTS
 - 1 side effects

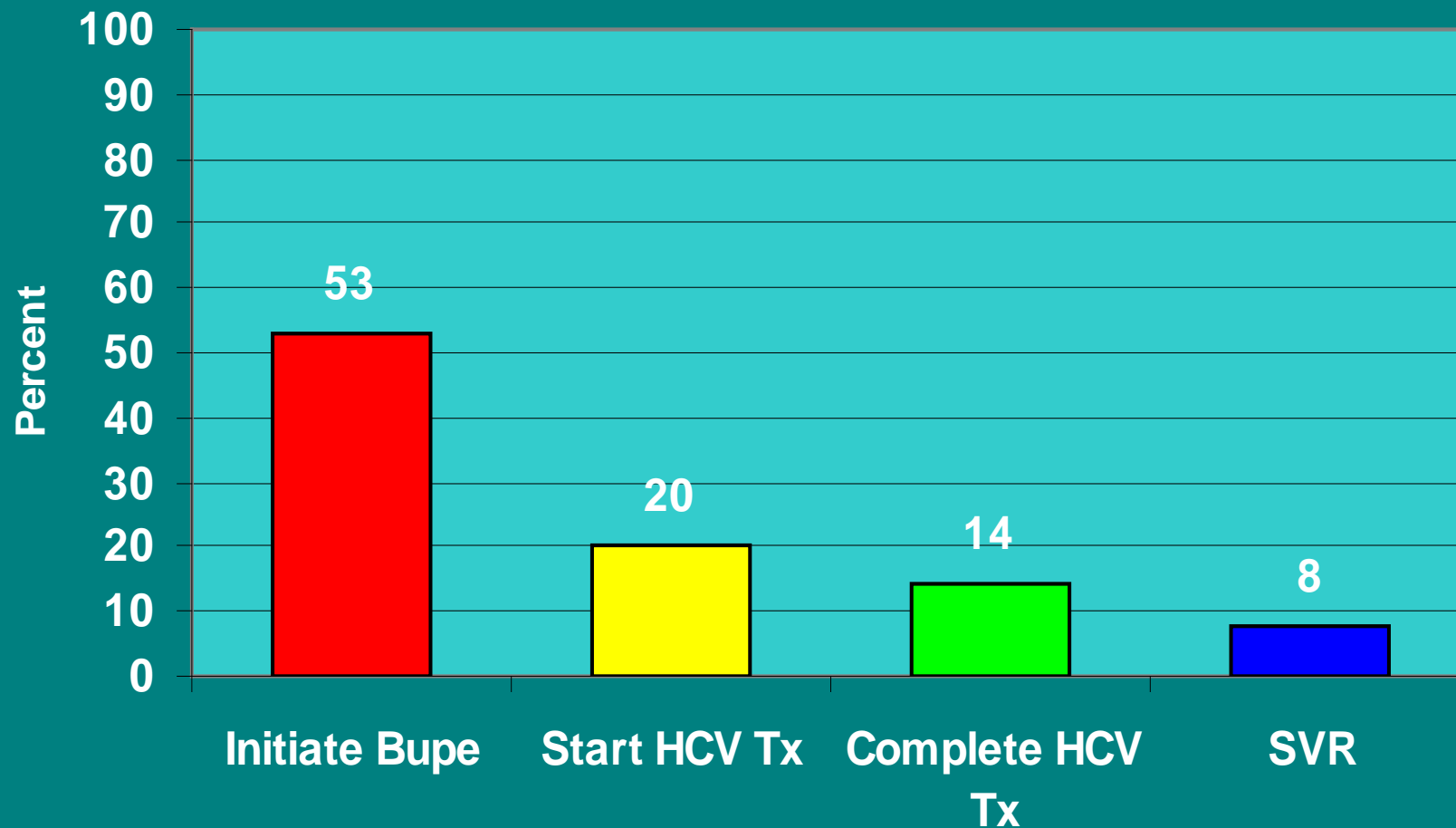
Outcomes by Genotype



Relevance to heroin users who initiate buprenorphine



Relevance to all eligible heroin users



OASIS Resources

- Providers:
 - Hepatitis C University
 - www.hcvu.org
- Patients:
 - HepC411