Combatting Intersecting Epidemics of Opioid Use and Racism to Improve Health Outcomes for People who Use Drugs

Lessons Learned During 20 Years of Research and Leadership

Julia Arnsten, MD, MPH
Professor of Medicine, Psychiatry, Epidemiology
Chief, Division of General Internal Medicine









Our DGIM Faculty & Staff (not all!)

Montefiore

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Outline

- My journey to addiction research
- Studying HIV adherence among people who use drugs
- Developing methadone-based models of care
  - DOT works but depends on restrictive methadone regulations
  - How to improve methadone and preserve DOT for those who need it?
- Building addiction research and care in the Division of General Internal Medicine
  - Training new addiction researchers and educating residents about substance use
  - Expanding treatment options for people of color
    - Buprenorphine treatment network
    - Syringe exchange program-based medical care
    - Medical cannabis program
  - Addiction Medicine fellowship
- What happened in 2020 and how it changed us

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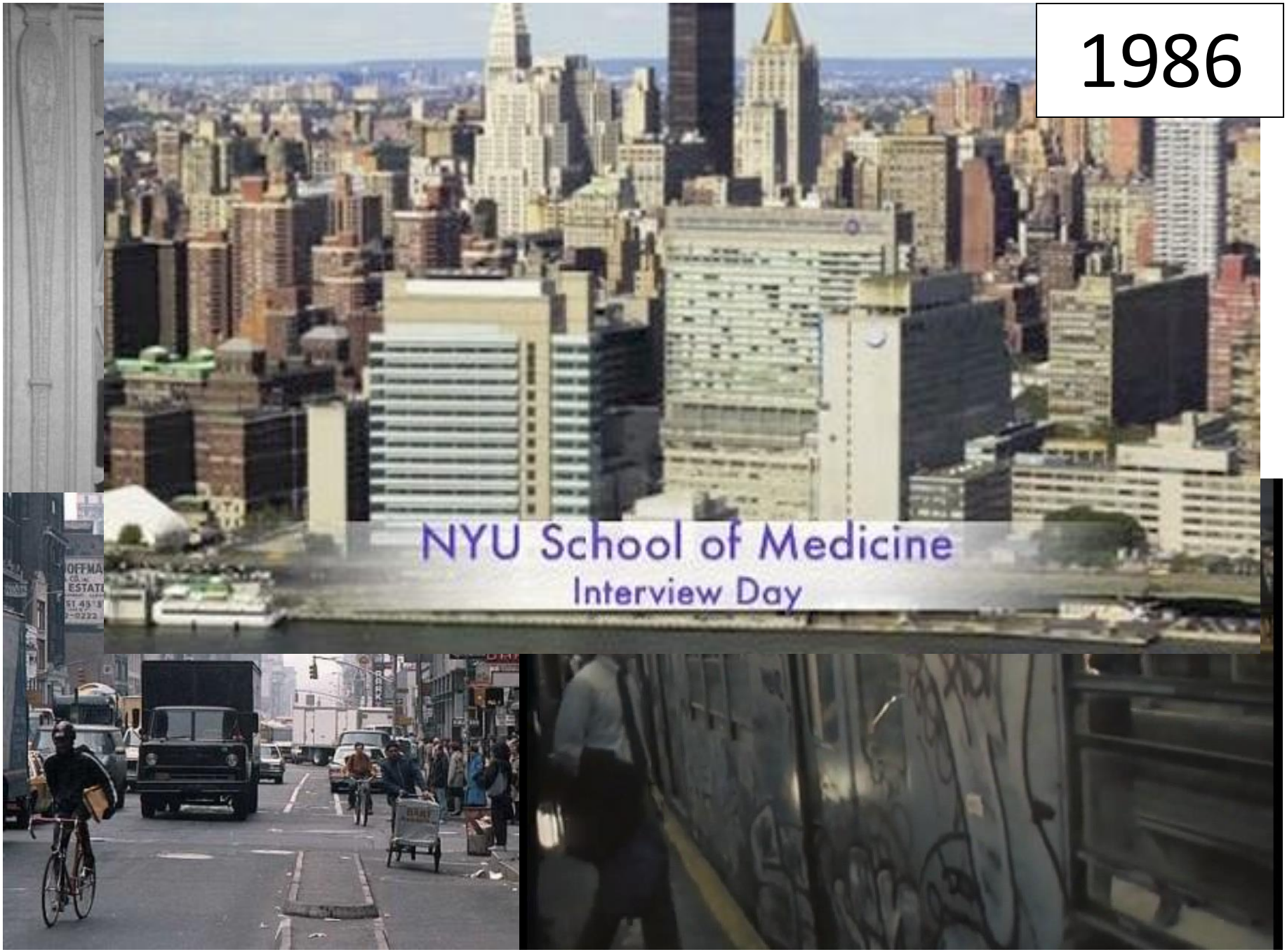
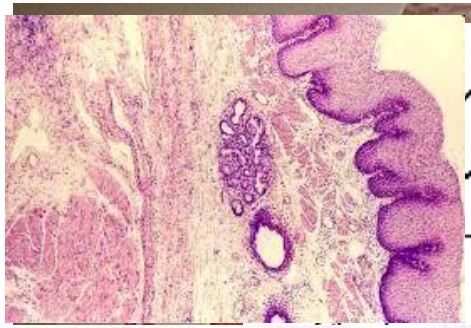
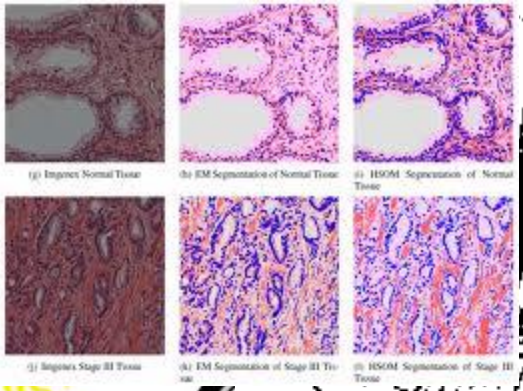
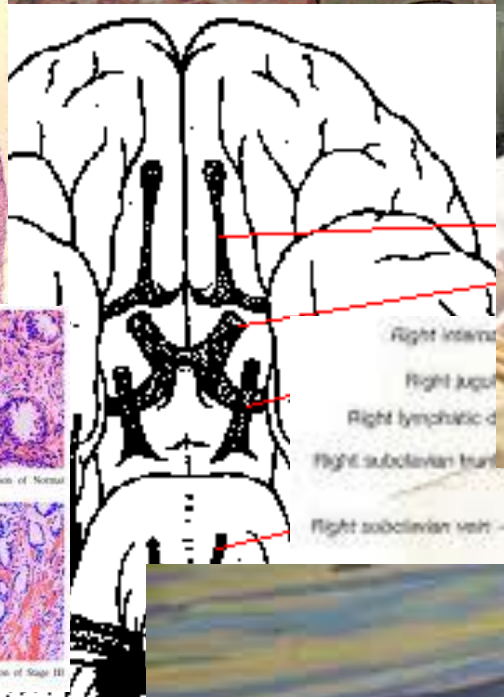
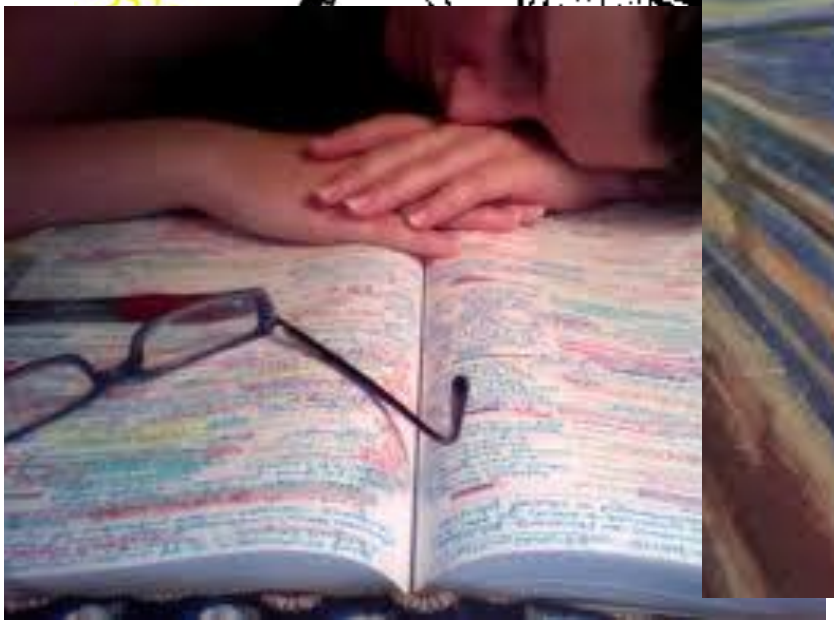

1986
NYU School of Medicine
Interview Day





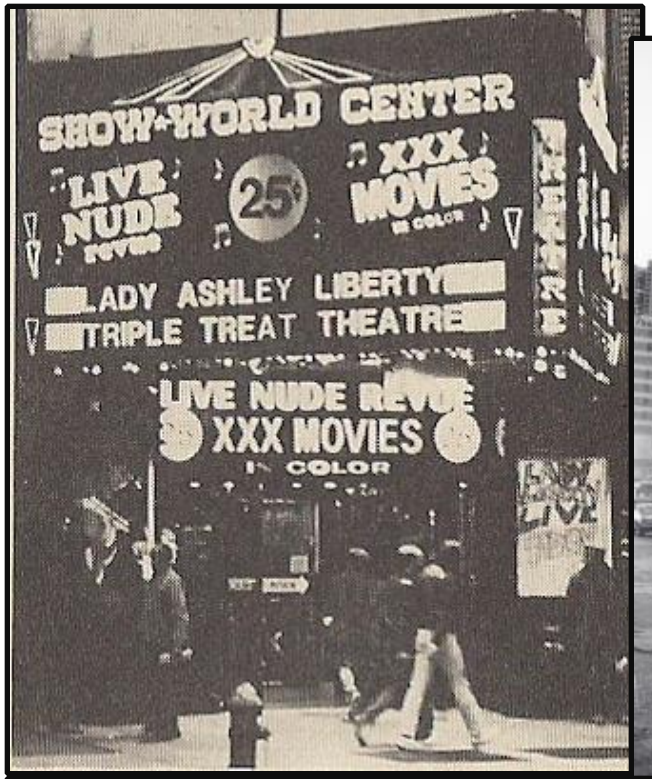

Right subclavian vein

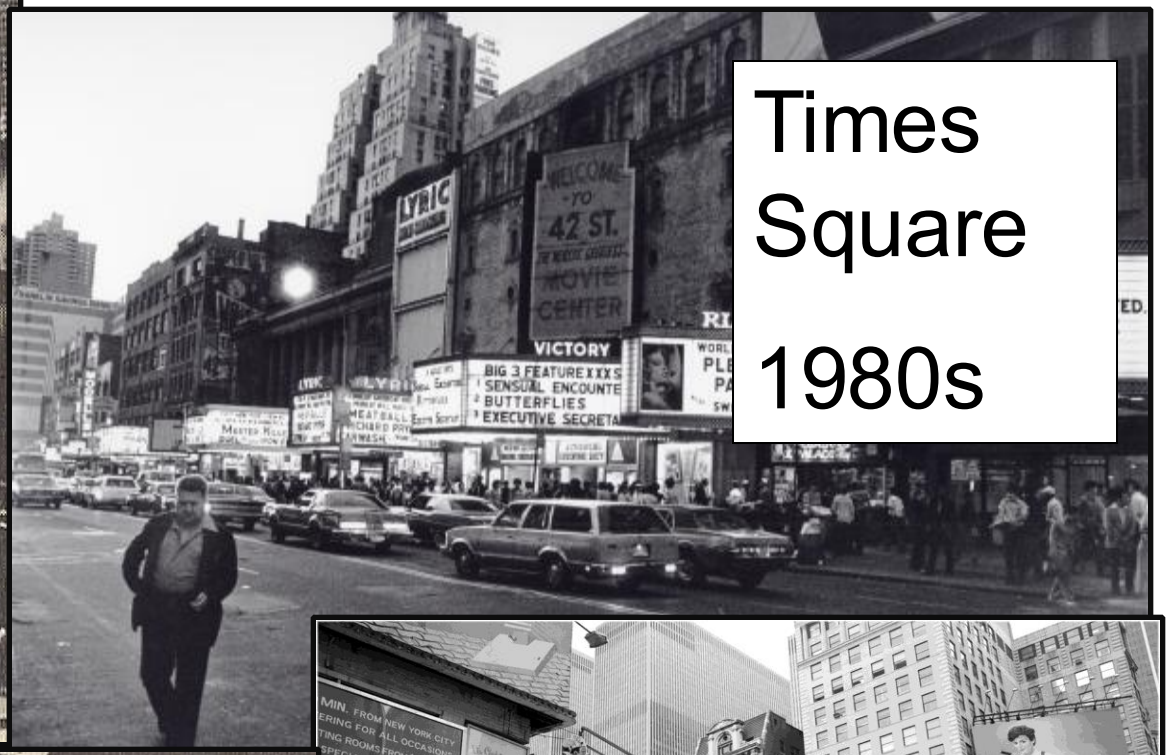

Left
bronchomediastinal
trunk



Mentorship


BELLEVUE HOSPITAL
AMBULANCE





Times Square

1980s


Times
Square
2000s
LG
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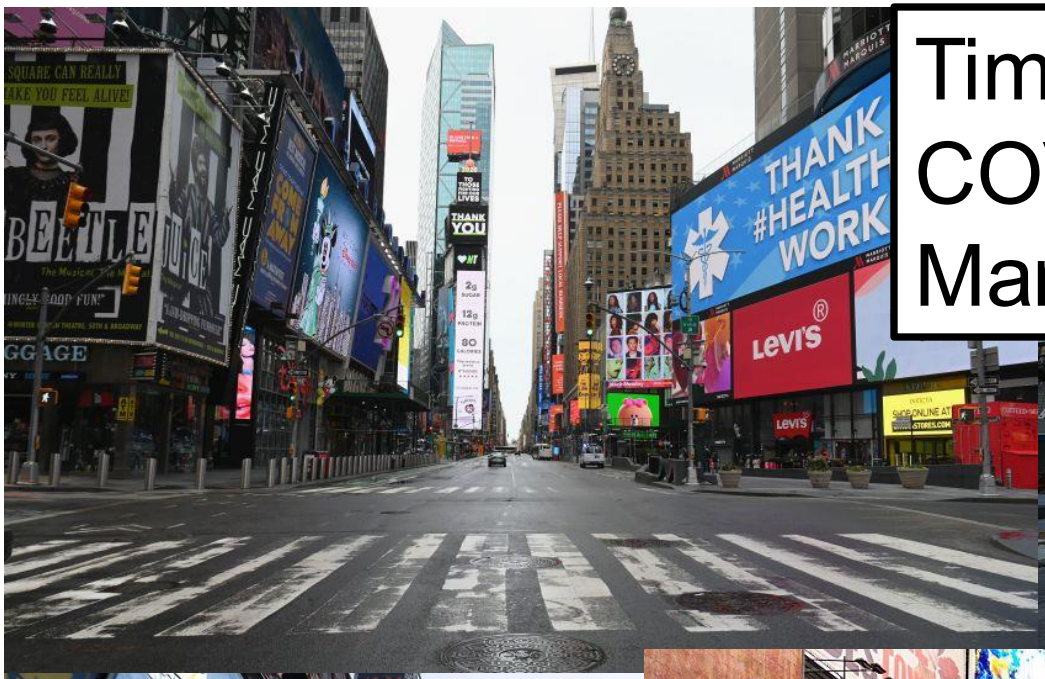
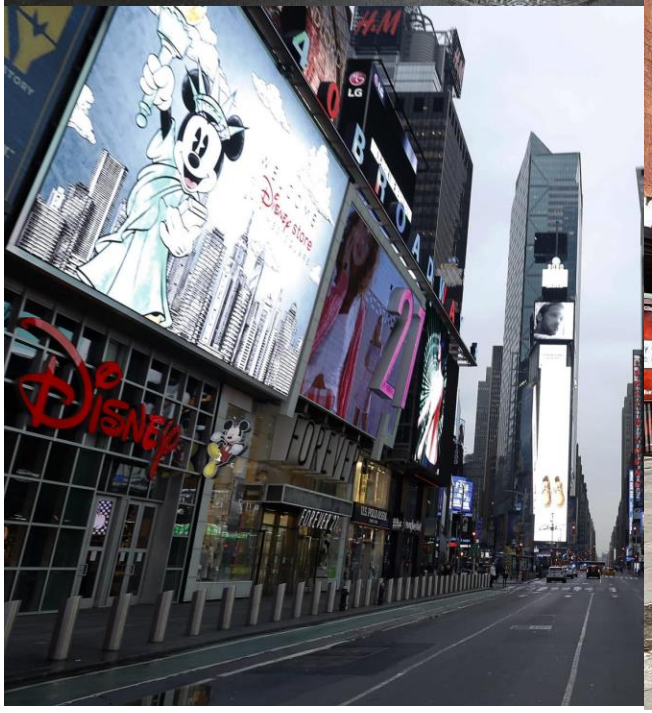
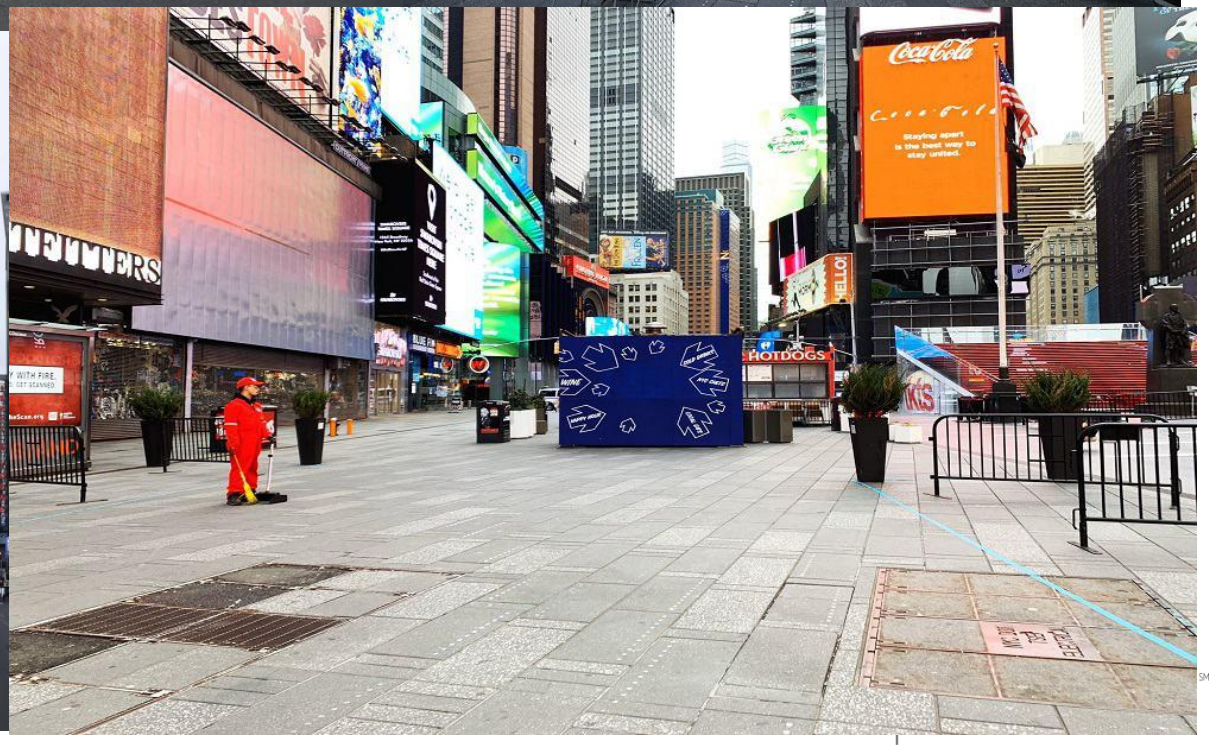
Ameritrade
800-290-0500
FOREVER 21

Times Square during COVID surge March-April, 2020







Times Square White Coats for Black Lives Rally June, 2020


BELLEVUE HOSPITAL
AMBULANCE

1980 - 1981

January - Ronald Reagan is sworn in as the 40th President.

April - Sandra Ford at the CDC writes about unusual, urgent drug refill requests by doctors treating gay men with immune problems.

June 5th - Recognized officially as the beginning of the AIDS pandemic. CDC publishes a brief account of a mysterious illness in 5 gay men in LA, in its Morbidity and Mortality Weekly Report (MMWR) newsletter, written by Michael Gottlieb, MD and Joel Weisman, MD.

July 3rd - New York Times runs first news story on AIDS, "Rare Cancer Seen in 41 Homosexuals." Alarmed, 80 gay men gather in Larry Kramer's NYC apartment, raising $6,635 for research.

August 24th - Kramer writes in NY Native: "This is our disease and we must take care of each other and ourselves."

August 28th - CDC reports first cases in heterosexuals, including first female.

December 10th - The New England Journal of Medicine reports first cases in intravenous drug users. The media calls the disease "gay cancer" or Gay-Related Immunodeficiency Disease (GRID).

October - CDC declares the new disease an epidemic.

December 31, 1981 - 422 cases of the mysterious new disease (AIDS) have been diagnosed in the U.S.; 159 are dead.

CENTERS FOR DISEASE CONTROL

June 5, 1981 / Vol. 30 / No. 21

MMWR

MORBIDITY AND MORTALITY WEEKLY REPORT

Epidemiologic Notes and Reports

Pneumocystis Pneumonia — Los Angeles

In the period October 1980-May 1981, 5 young men, all active homosexuals, were treated for biopsy-confirmed *Pneumocystis carinii* pneumonia at 3 different hospitals in Los Angeles, California. Two of the patients died. All 5 patients had laboratory-confirmed previous or current cytomegalovirus (CMV) infection and candidal mucosal infection. Case reports of these patients follow.

1989 – Among methadone patients, HIV infection associated with injection practices, being Black or Hispanic, low income

THE NEW ENGLAND JOURNAL OF MEDICINE Sept. 28, 1989

SPECIAL ARTICLE

RISK FACTORS FOR HUMAN IMMUNODEFICIENCY VIRUS INFECTION IN INTRAVENOUS DRUG USERS

ELLIE E. SCHOENBAUM, M.D., DIANA HARTEL, M.P.H., PETER A. SELWYN, M.D., M.P.H., ROBERT S. KLEIN, M.D., KATHERINE DAVENNY, M.P.H., MARTHA ROGERS, M.D., CHERYL FEINER, M.P.H., AND GERALD FRIEDLAND, M.D.

Abstract To identify risk factors for human immunodeficiency virus (HIV) infection in intravenous drug users, we undertook a study of the seroprevalence of HIV antibody in 452 persons enrolled in a methadone-treatment program in the Bronx, New York. The seroprevalence of HIV was 39.4 percent overall, 49.1 percent in blacks, 41.8 percent in Hispanics, and 17.2 percent in non-Hispanic whites ($P<0.001$ for all comparisons).

The presence of HIV antibody was associated with the number of injections per month ($P<0.001$), the percentage of injections with used needles ($P<0.001$), the average number of injections with cocaine per month ($P<0.001$), and the percentage of injections with needles that were shared with strangers or acquaintances ($P<0.001$), a practice that was more common among blacks and Hispanics than among whites. The number of heterosexual sex partners who used intravenous drugs was associated with HIV infection in women ($P<0.004$) and was the only risk factor found for users who had not injected drugs after 1982 ($P<0.05$). The presence of HIV antibody was independently associated with being black or Hispanic (adjusted odds ratio, 4.56; 95 percent confidence interval, 2.65 to 8.14), a more recent year of the last injection of drugs (adjusted odds ratio, 1.24; 95 percent confidence interval, 1.13 to 1.35), the percentage of injections of drugs that took place in "shooting galleries" (adjusted odds ratio, 1.49; 95 percent confidence interval, 1.19 to 1.88), having sex partners who used intravenous drugs (adjusted odds ratio 1.24; 95 percent confidence interval, 1.06 to 1.45), and low income (adjusted odds ratio, 1.55; 95 percent confidence interval, 1.10 to 2.17).

We conclude that differences in both the social setting of drug use and behavior related to injection carry different risks for infection with HIV and may explain, in part, the higher seroprevalence of HIV among blacks and Hispanics. In addition, we found that heterosexual activity was an independent risk factor for drug users. (N Engl J Med 1989; 321:874-9.)

The Impact of New York City's 1975 Fiscal Crisis on the Tuberculosis, HIV, and Homicide Syndemic

- **From 1978-1992, TB rates in NYC went up every year (after almost a century of decline), leading to 52,000 excess TB cases**
  - DOH cut TB control program by closing district health centers, chest clinics, and the city's TB hospital
  - Reductions in Medicaid and low-income housing pushed many into homelessness; shelters & jails new settings for TB transmission.
- **In 1988, 89% of patients d/c'ed from Harlem Hospital (which served the district with the city's highest TB rates) were lost to f/u or did not complete treatment.**
- **HIV/AIDS epidemic coincided with TB resurgence.**

Freudenberg N, AJPH, 2006

Change in TB rates in US cities: 1981-1992

Table 1.—Eleven-Year Trends in the 20 US Cities (Population Over 250 000) With the Highest Incidence of Tuberculosis in 1981*

City	1981 Rate†	1985 Rate†	1992 Rate†	% Change, 1981 Through 1992	% Change, 1985 Through 1992
Miami, Fla	87.0	47.8	47.5	−45.4	−0.6
San Francisco, Calif	56.3	41.6	48.7	−13.5	+17.1
Newark, NJ	40.9	33.7	68.3	+66.9	+102.7
Atlanta, Ga	39.7	47.8	78.2	+96.9	+63.6
Washington, DC	37.9	26.8	24.8	−34.6	−7.5
Baltimore, Md	35.6	24.4	17.2	−51.7	−29.5
Houston, Tex	34.3	26.4	42.4	+23.6	+60.6
Los Angeles, Calif	32.5	23.1	31.1	−4.3	+34.6
Oakland, Calif	32.1	25.1	33.9	+5.6	+35.1
Chicago, Ill	30.7	24.1	28.6	−6.8	+18.7
Tampa, Fla	28.8	33.6	28.7	−0.3	−14.6
Detroit, Mich	28.3	17.0	19.7	−30.4	+15.9
Boston, Mass	27.4	27.0	22.3	−18.6	−17.4
Birmingham, Ala	27.2	16.1	15.1	−44.4	−6.2
Honolulu, Hawaii	27.0	25.6	37.4	+38.5	+46.1
New Orleans, La	24.8	16.7	19.3	−22.2	+15.6
Portland, Ore	23.7	19.0	14.8	−37.6	−22.1
New York, NY	22.4	26.1	52.0	+132.1	+99.2
Long Beach, Calif	22.1	17.5	25.6	+15.8	+46.3
Seattle, Wash	21.9	15.7	17.6	−19.6	+12.1

*Source of data was Centers for Disease Control and Prevention[37] (annual volumes, 1981 through 1992).
†Rate is tuberculosis cases per 100 000 population.

- During the decade from 1981 to 1992, the rate of TB in New York City increased from 22 cases per 100,000 population to 52 cases per 100,000 (99.2% change)
- Only city with greater increase: Newark, NJ

Chaulk CP, JAMA, 1995

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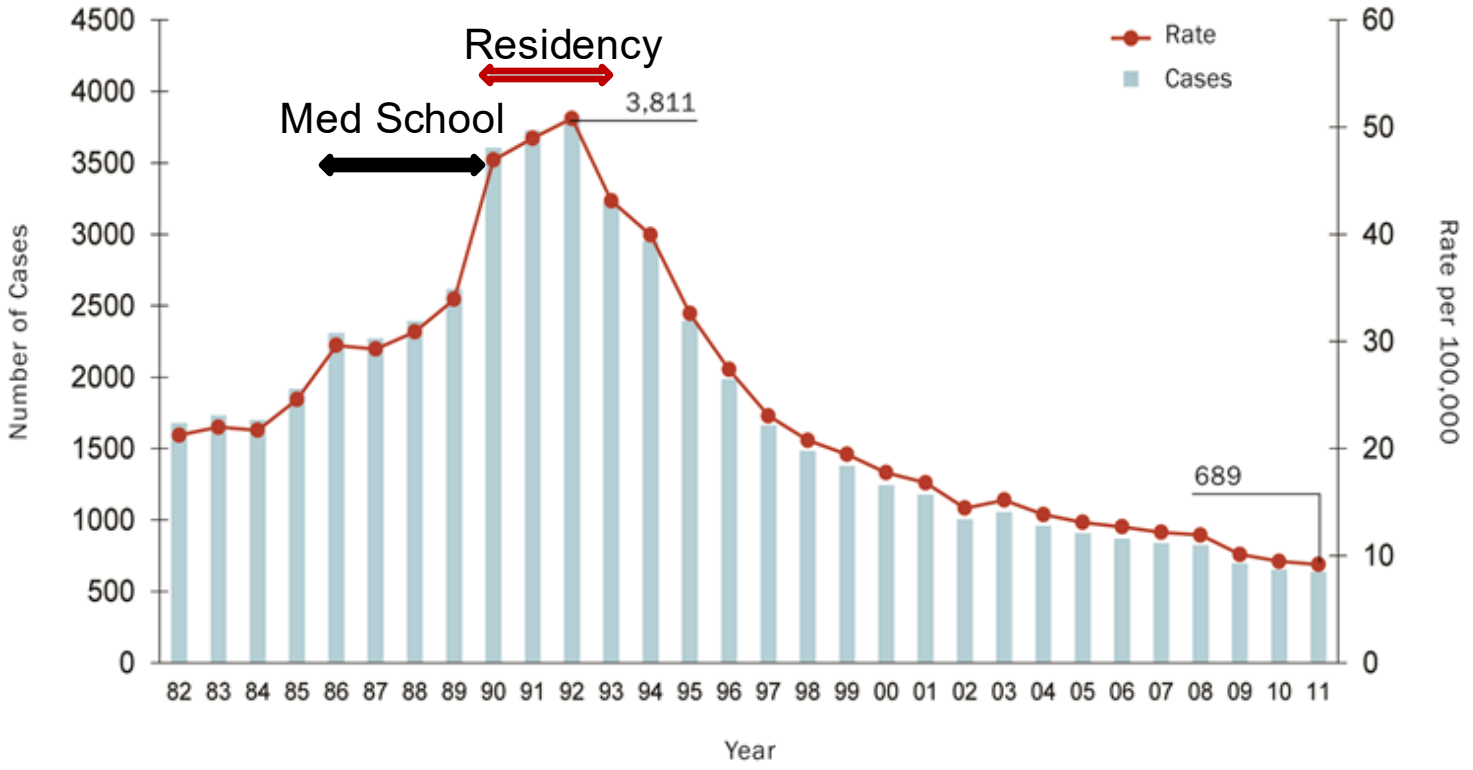
My training coincided with the rise and peak of TB cases in New York City



NYC DOH, 2019

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Nonadherence in Tuberculosis Treatment: Predictors and Consequences in New York City

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Barron H. Lerner, MD, PhD, *New York, New York*, Thomas R. Frieden, MD, MPH, *Atlanta, Georgia*

The Relationship Between Delayed or Incomplete Treatment and All-Caus Mortality in Patients With Tuberculosis

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A controlled trial of methadone treatment combined with directly observed isoniazid for tuberculosis prevention in injection drug users

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[a] *Department of Psychiatry, State University of New York Upstate Medical University, 750 East Adams St., Syracuse, NY 13210, USA*
[b] *Department of Psychiatry, University of California, San Francisco, San Francisco, CA 94143, USA*

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The effects of increasing incentives on adherence to tuberculosis directly observed therapy

INT J TUBERC LUNG DIS 1(5):397–404

Implementation of universal directly observed therapy at a New York City hospital and evaluation of an out-patient directly observed therapy program

N. Salomon, D. C. Perlman, A. Rubenstein, D. Mandelman, F. W. McKinley, S. R. Yancovitz

Department of Medicine, Beth Israel Medical Center, New York, NY, USA

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CONCLUSION: Increasing incentives is associated with improved adherence to therapy in inner city TB populations.

KEY WORDS: TB; adherence; DOT

Directly Observed Therapy and Treatment Completion for Tuberculosis in the United States: Is Universal Supervised Therapy Necessary?

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Yor

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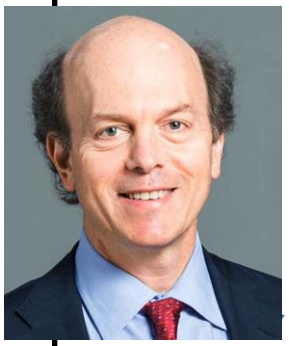
Successful Adherence to Observed Prophylaxis and Treatment of Tuberculosis Among Drug Users in a Methadone Program

Marc N. Gourevitch, MD, MPH
William Wasserman, MPH
Maria S. Panero, MD
Peter A. Selwyn, MD, MPH



ABSTRACT. Incomplete antituberculous chemoprophylaxis and treatment are major causes of the resurgence of tuberculosis, often drug-resistant, among drug users. We offered directly observed antituberculous chemoprophylaxis (n = 102) or treatment (n = 12) to eligible meth[illegible] maintenance treatment [illegible]. Methadone dos-

Marc N. Gourevitch is affiliated with the Department of Epidemiology a[illegible] Social Medicine and the Department of Medicine; William Wasserman is affiliated with the Department of Family Medicine; Maria S. Panero, at the time of the study, was affiliated with the Department of Family Medicine, and Peter A. Selwyn at the time of the study, was affiliated with the Department of Epidemiology and Social Medicine and the Department of Family Medicine, Montefior Medical Center, Albert Einstein College of Medicine, Bronx, NY 10467. Dr. Selwyn is now with the AIDS Program, Yale-New Haven Hospital, Yale University School of Medicine, New Haven, CT 06510.

Address correspondence to: Marc N. Gourevitch, MD, MPH, Department of Epidemiology and Social Medicine, Montefiore Medical Center, 111 East 210th Street, Bronx, NY 10467.

The authors wish to thank the nursing and medical providers of the Montefi[illegible] Substa[illegible] Abuse Treatment Program for their dedication and excell[illegible] patient care, and Dr. R[illegible] S. Klein for his review of the manuscri[illegible]

This study was supported in part by Thes[illegible]/NIDA (#CSH-000127-04-0), NY State AIDS Institute (#814-2300C-6508), Centers for Disease Control (#U64/CCU200 714), NIDA (#RO1 DA04347-07) and the Aaron Diamond Foundation.

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RES[illegible] OT
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1993: General Internal Medicine Fellowship

MASSACHUSETTS GENERAL HOSPITAL

MGH 1811

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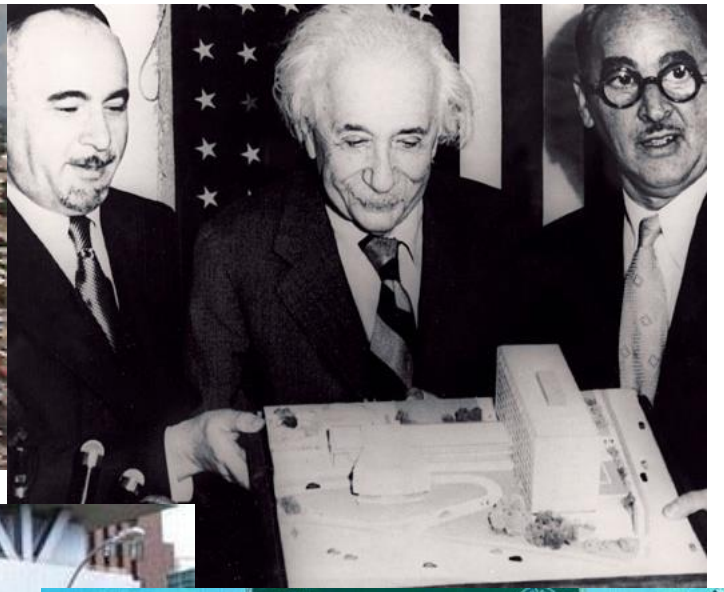
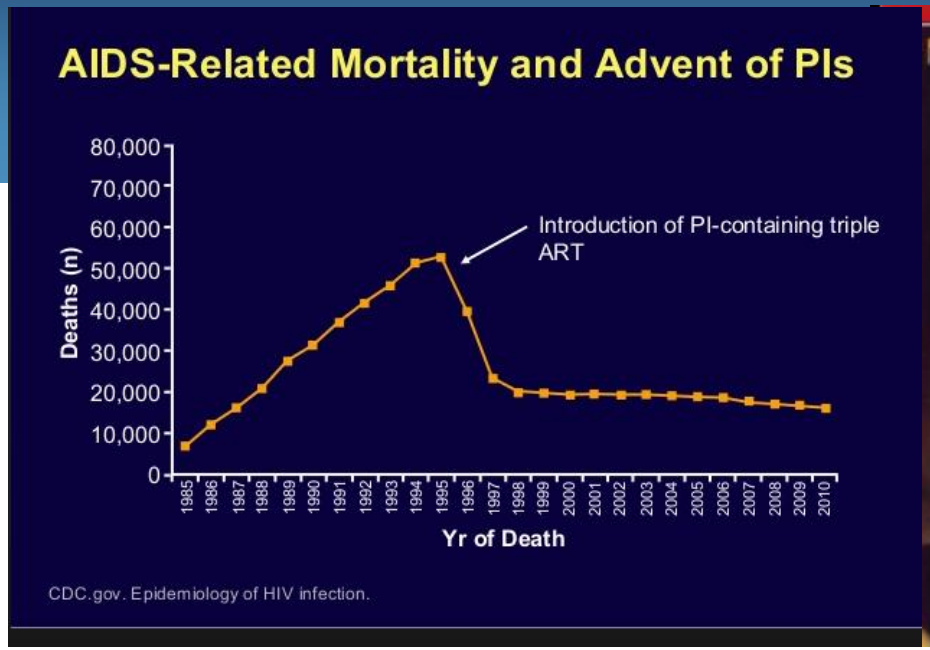
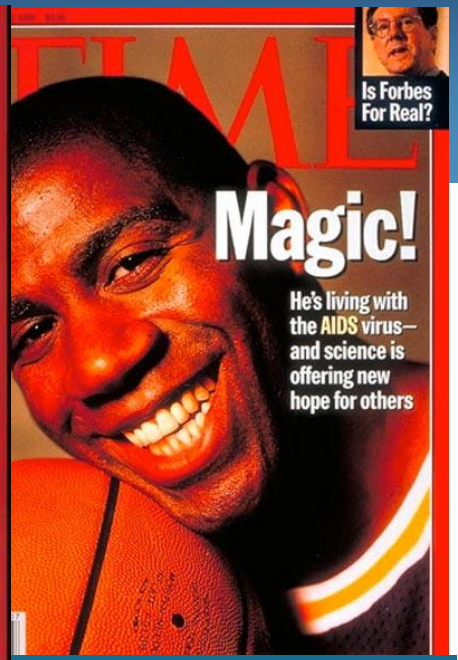


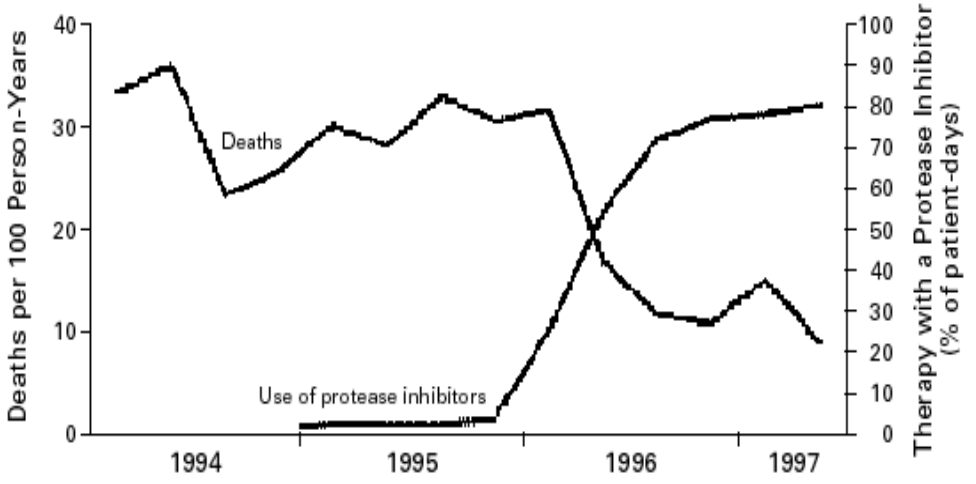

MONTEFIORE
The University Hospital for the Albert Einstein College of Medicine


Welcome
IM SO NYC - FB PAGE
to the Bronx
Enter At Your Own Risk

HIV Mortality Dramatically Declined After 1995







Adherence

Active Drug Use Negatively Impacts Adherence

- HIV adherence worse among persons *actively* using cocaine, other stimulants, or heroin
  - Active cocaine use associated with most deleterious effects
- Current/active drug use different from former drug use
- How to improve adherence by those actively using drugs?

Impact of Active Drug Use on Antiretroviral Therapy Adherence and Viral Suppression in HIV-infected Drug Users

Julia H. Arnsten, MD, MPH, Penelope A. Demas, PhD, Richard W. Grant, MD, Marc N. Gourevitch, MD, MPH, Homayoon Farzadegan, PhD, Andrea A. Howard, MD, Ellie E. Schoenbaum, MD

A prospective study of adherence and viral load in a large multi-center cohort of HIV-infected women

Andrea A. Howard, Julia H. Arnsten, Yungtai Lo, David Vlahov[a,b], Josiah D. Rich[c], Paula Schuman[d], Valerie E. Stone[e], Dawn K. Smith[f] and Ellie E. Schoenbaum for the HER Study Group

AIDS Behav (2013) 17:142–147
DOI 10.1007/s10461-011-0124-7

ORIGINAL PAPER

Association Between Use of Specific Drugs and Antiretroviral Adherence: Findings from MACH 14

M. I. Rosen · A. C. Black · J. H. Arnsten · K. Goggin · R. H. Remien · J. M. Simoni · C. E. Golin · D. R. Bangsberg · H. Liu

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Arnsten, JGIM, 2002; Howard, AIDS, 2002; Rosen, AIDS Behav 2013

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  - Addiction Medicine fellowship
- What happened in 2020 and how it changed us

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Einstein/Montefiore Opioid Treatment Programs in 2000s

Key

1: Melrose on Track, Melrose 9

2: SATP-Unit 1

3: SATP-Unit 3

4: Soundview

5: Trailer 1, Trailer 2, Van Etten

6: The Wellness Center at Port Morris

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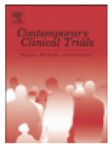
Randomized Trial of Methadone-based DOT

Contents lists available at ScienceDirect

Contemporary Clinical Trials

journal homepage: www.elsevier.com/locate/conclintrial



Rationale, design, and sample characteristics of a randomized controlled trial of directly observed antiretroviral therapy delivered in methadone clinics☆

Karina M. Berg, Jennifer Mouriz, Xuan Li, Elise Duggan, Uri Goldberg, Julia H. Arnsten *

Division of General Internal Medicine, Department of Medicine, Albert Einstein College of Medicine and Montefiore Medical Center, 111 East 210th Street, Bronx, NY 10467, USA
Division of Substance Abuse, Department of Psychiatry and Behavioral Sciences, Albert Einstein College of Medicine and Montefiore Medical Center, 111 East 210th Street, Bronx, NY 10467, USA

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Keywords:
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Medication adherence
Methadone
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Substance abuse treatment
Antiretroviral therapy

ABSTRACT

Background: Directly observed therapy (DOT) programs for HIV treatment have demonstrated feasibility, acceptability, and improved viral suppression, but few have been rigorously tested. We describe a randomized controlled trial testing the efficacy of an antiretroviral DOT program in methadone maintenance clinics. Our objective was to determine if DOT is more efficacious than self-administered antiretroviral therapy for reducing HIV viral load, improving adherence, and reducing drug resistance among opioid dependent drug users receiving methadone treatment.

Methods: Participants were randomized to treatment as usual (TAU) or antiretroviral DOT for the 24-week intervention. TAU participants received standard adherence counseling, and DOT participants received standard adherence counseling plus directly observed antiretroviral therapy, which was delivered at the same time as they received daily methadone. Assessments occurred at baseline, weekly for 8 weeks, and then monthly for 4 months. Our primary outcomes were between-group changes from baseline to the end of the intervention in: HIV viral load, antiretroviral adherence, and number of viral mutations.

Results: Between June 2004 and August 2007, we screened 3231 methadone-maintained patients and enrolled 77; 39 participants were randomized to DOT and 38 to TAU. 65 completed the 24-week intervention.

Conclusions: Our trial will allow rigorous evaluation of the efficacy of directly observed antiretroviral therapy delivered in methadone clinics for improving adherence and clinical outcomes. This detailed description of trial methodology can serve as a template for the development of future DOT programs and can guide protocols for studies among HIV-infected drug users receiving methadone for opioid dependence.

- First randomized trial of DOT versus self-administered HAART
- Conducted in a network of 12 methadone clinics that provide primary medical care on-site
- Six-month DOT intervention with 12 month follow-up period

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What did we learn?

Drug and Alcohol Dependence 113 (2011) 192–199

Contents lists available at ScienceDirect

Drug and Alcohol Dependence

journal homepage: www.elsevier.com/locate/drugalcdep

Directly observed antiretroviral therapy improves adherence and viral load in drug users attending methadone maintenance clinics: A randomized controlled trial☆

Karina M. Berg, Alain Litwin, Xuan Li, Moonseong Heo, Julia H. Arnsten*

Division of General Internal Medicine, Department of Medicine, Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, NY, United States

ARTICLE INFO

Article history:
Received 19 April 2010
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Keywords:
Directly observed therapy
HIV
Medication adherence
Methadone
Randomized trial

ABSTRACT

Objective: To determine if directly observed antiretroviral therapy (DOT) is more efficacious than self-administered therapy for improving adherence and reducing HIV viral load (VL) among methadone-maintained opioid users.
Design: Two-group randomized trial.
Setting: Twelve methadone maintenance clinics with on-site HIV care in the Bronx, New York.
Participants: HIV-infected adults prescribed combination antiretroviral therapy.
Main outcomes measures: Between group differences at four assessment points from baseline to week 24 in: (1) antiretroviral adherence measured by pill count, (2) VL, and (3) proportion with undetectable VL (<75 copies/ml).
Results: Between June 2004 and August 2007, we enrolled 77 participants. Adherence in the DOT group was higher than in the control group at all post-baseline assessment points; by week 24 mean DOT adherence was 86% compared to 56% in the control group ($p < 0.0001$). Group differences in mean adherence remained significant after stratifying by baseline VL (detectable versus undetectable). In addition, during the 24-week intervention, the proportion of DOT participants with undetectable VL increased from 51% to 71%.
Conclusions: Among HIV-infected opioid users, antiretroviral DOT administered in methadone clinics was efficacious for improving adherence and decreasing VL, and these improvements were maintained over a 24-week period. DOT should be more widely available to methadone patients.

HIV/AIDS MAJOR ARTICLE

Lack of Sustained Improvement in Adherence or Viral Load Following a Directly Observed Antiretroviral Therapy Intervention

Karina M. Berg,[1,2] Alain H. Litwin,[1,2] Xuan Li,[1] Moonseong Heo,[3] and Julia H. Arnsten[1,2,3]

[1]Department of Medicine, [2]Department of Psychiatry and Behavioral Sciences, and [3]Department of Epidemiology and Population Health, Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, New York

Background. Methadone clinic–based directly observed antiretroviral therapy (DOT) has been shown to be more efficacious for improving adherence and suppressing human immunodeficiency virus (HIV) load than antiretroviral self-administration. We sought to determine whether the beneficial effects of DOT remain after DOT is discontinued.

Methods. We conducted a post-trial cohort study of 65 HIV-infected opioid-dependent adults who had completed a 24-week randomized controlled trial of methadone clinic–based DOT versus treatment as usual (TAU). For 12 months after DOT discontinuation, we assessed antiretroviral adherence using monthly pill counts and electronic monitors. We also assessed viral load at 3, 6, and 12 months after DOT ended. We examined differences between DOT and TAU in (1) adherence, (2) viral load, and (3) proportion of participants with viral load of <75 copies/mL.

Results. At trial end, adherence was higher among DOT participants than among TAU participants (86% and 54%, respectively; $P < .001$), and more DOT participants than TAU participants had viral loads of <75 copies/mL (71% and 44%, respectively; $P = .03$). However, after DOT ended, differences in adherence diminished by 1 month (55% for DOT vs 48% for TAU; $P = .33$) and extinguished completely by 3 months (49% for DOT vs 50% for TAU; $P = .94$). Differences in viral load between DOT and TAU disappeared by 3 months after the intervention, and the proportion of DOT participants with undetectable viral load decreased steadily after DOT was stopped until there was no difference (36% for DOT and 34% for TAU; $P = .92$).

Conclusions. Because the benefits of DOT for adherence and viral load among HIV-infected methadone patients cease after DOT is stopped, methadone-based DOT should be considered a long-term intervention.

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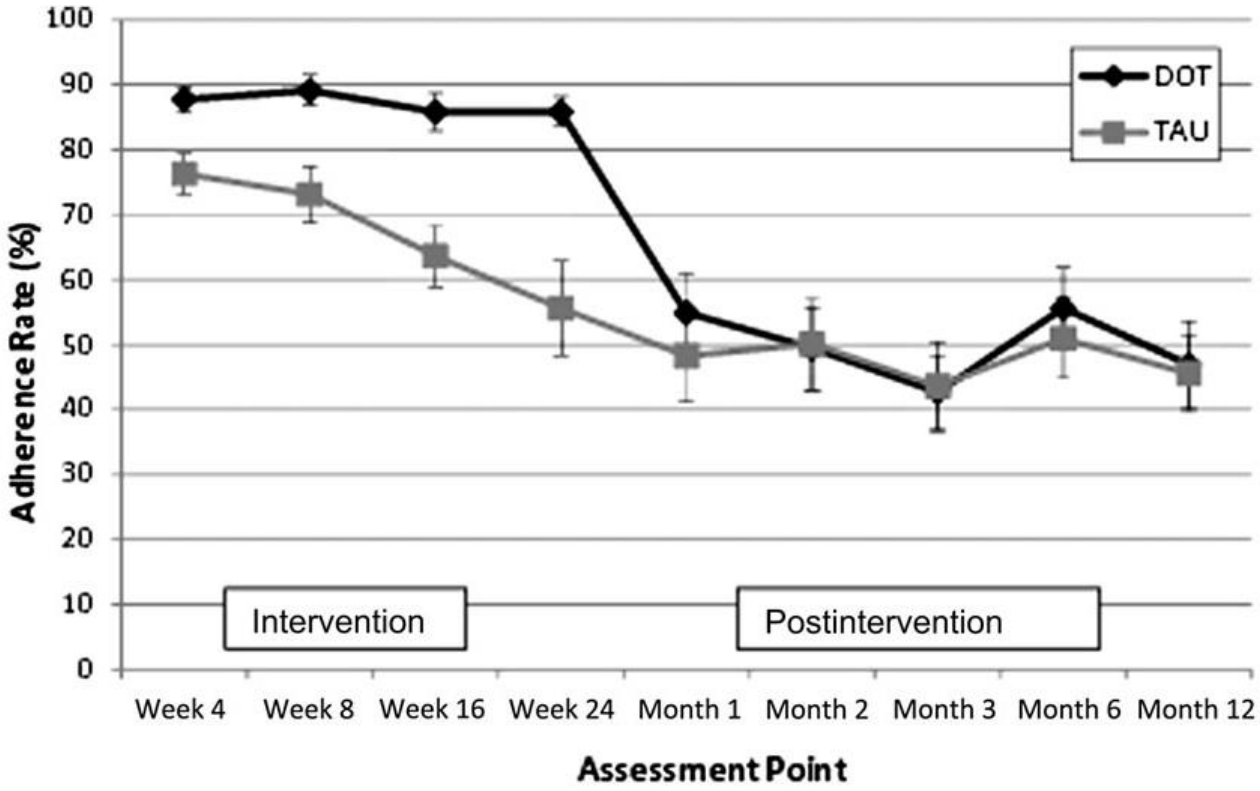
DOT Improves Adherence During the Intervention Period, but Behavior Change NOT Sustained



Berg KM, CID, 2011

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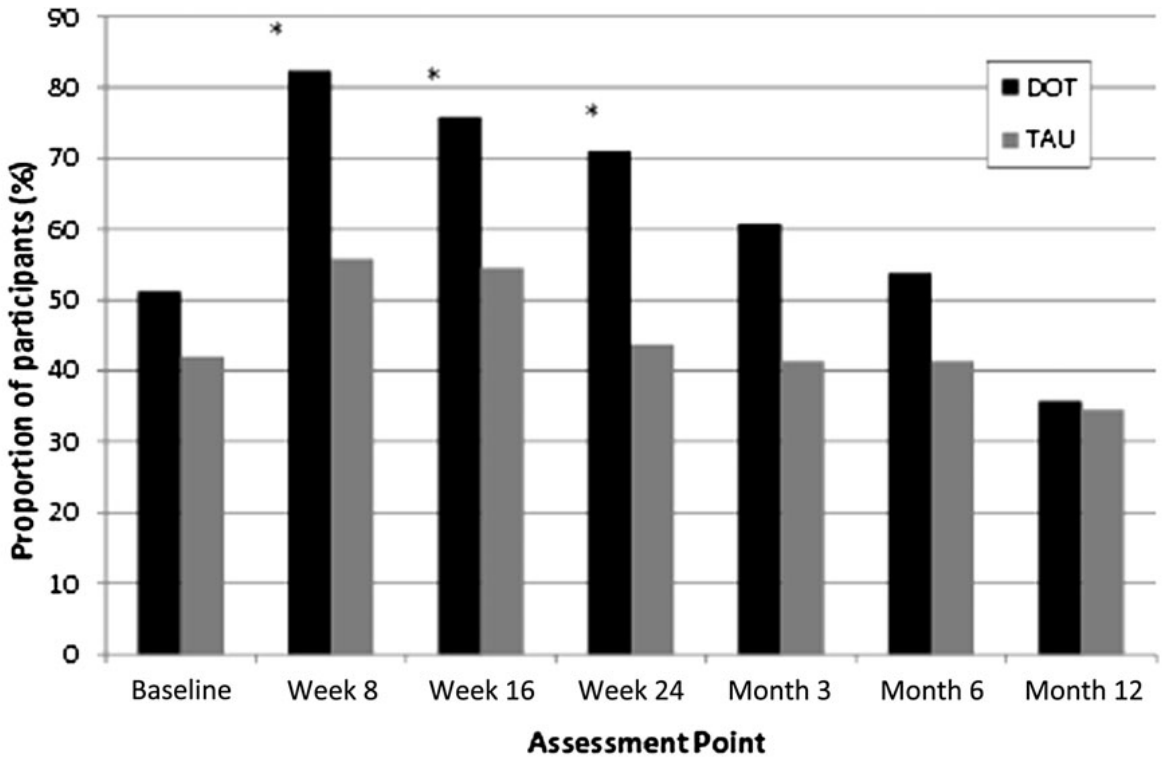
Viral Load Suppression Improves During the Intervention but Improvement NOT Sustained



Berg KM, CID, 2011

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What Else Did We Learn?

Drug and Alcohol Dependence 120 (2012) 174–180

Contents lists available at ScienceDirect

Drug and Alcohol Dependence

journal homepage: www.elsevier.com/locate/drugalcdep

Directly observed antiretroviral therapy eliminates adverse effects of active drug use on adherence

Shadi Nahvi[a,b], Alain H. Litwin[a,b], Moonseong Heo[c], Karina M. Berg[a,d], Xuan Li[a], Julia H. Arnsten[a,b,c,*]

[a] Department of Medicine (Division of General Internal Medicine), Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, NY, United States
[b] Department of Psychiatry and Behavioral Sciences (Division of Substance Abuse), Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, NY, United States
[c] Department of Epidemiology and Population Health, Albert Einstein College of Medicine, Bronx, NY, United States
[d] Department of Medicine (Division of General Internal Medicine), Yale University School of Medicine, New Haven, CT, United States

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Methadone
Randomized trial
Substance use

ABSTRACT

Background: The impact of adherence enhancing interventions on the relationship between active drug use and adherence is largely unknown.
Methods: We conducted a 24-week randomized controlled trial of antiretroviral directly observed therapy (DOT) vs. treatment as usual (TAU) among HIV-infected methadone patients. Our outcome measure was pill count antiretroviral adherence, and our major independent variables were treatment arm (DOT vs. TAU) and active drug use (opiates, cocaine, or both opiates and cocaine). We defined any drug use as ≥1 positive urine toxicology result, and frequent drug use as ≥50% tested urines positive. We used mixed-effects linear models to evaluate associations between adherence and drug use, and included a treatment arm-by-drug use interaction term to evaluate whether DOT moderates associations between drug use and adherence.
Results: 39 participants were randomized to DOT and 38 to TAU. We observed significant associations between adherence and active drug use, but these were limited to TAU participants. Adherence was worse in TAU participants with any opiate use than in TAU participants without (63% vs. 75%, $p < 0.01$); and worse among those with any polysubstance (both opiate and cocaine) use than without (60% vs. 73%, $p = 0.01$). We also observed significant decreases in adherence among TAU participants with frequent opiate or frequent polysubstance use, compared to no drug use. Among DOT participants, active drug use was not associated with worse adherence.
Conclusions: Active opiate or polysubstance use decreases antiretroviral adherence, but the negative impact of drug use on adherence is eliminated by antiretroviral DOT.

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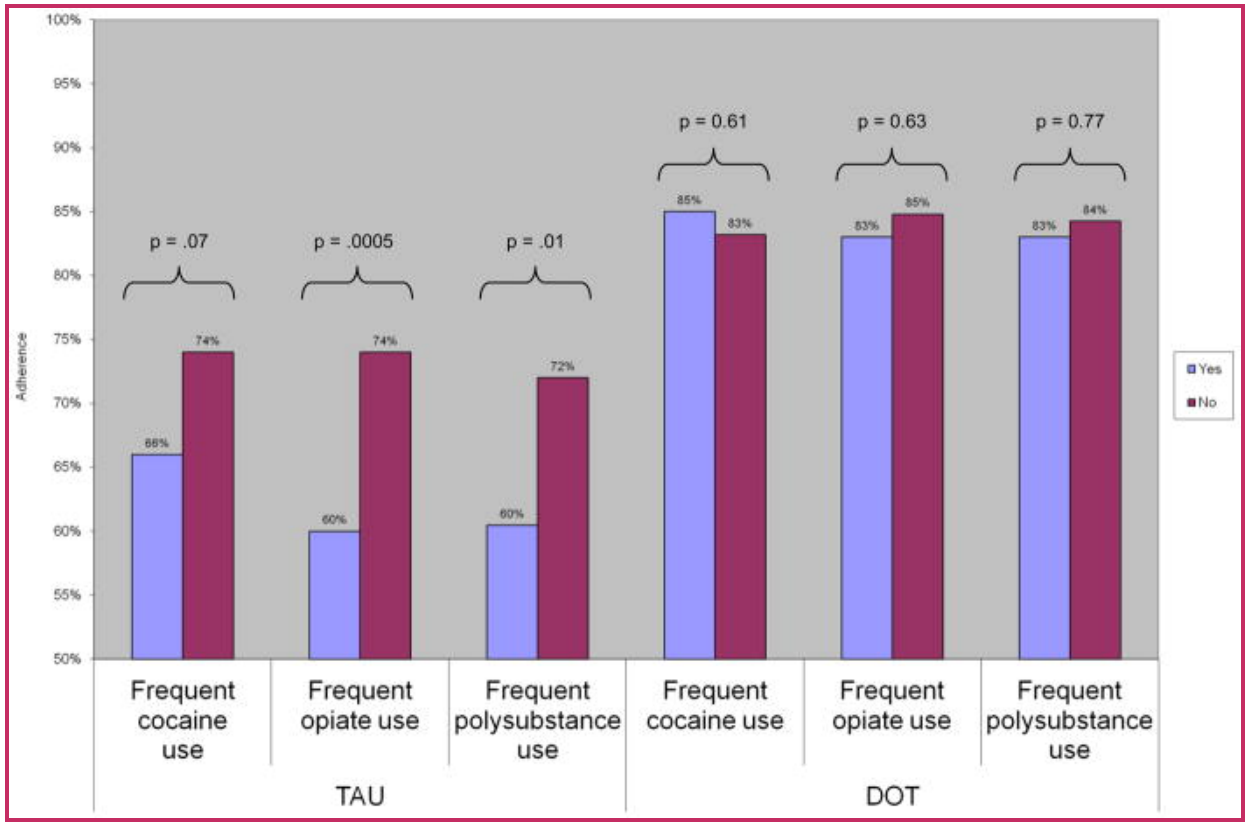
DOT Completely Eliminates Adverse Effect of Active Drug Use on Adherence



Nahvi, DAD, 2011

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We Expanded the DOT Model to Hepatitis C, and Compared it to Other Innovative Models

ORIGINAL RESEARCH

Annals of Internal Medicine

Intensive Models of Hepatitis C Care for People Who Inject Drugs Receiving Opioid Agonist Therapy

A Randomized Controlled Trial

Matthew J. Akiyama, MD, MSc; Brianna L. Norton, DO, MPH; Julia H. Arnsten, MD, MPH; Linda Agyemang, MPH; Moonseong Heo, PhD; and Alain H. Litwin, MD, MS, MPH

Background: Many people who inject drugs (PWID) are denied treatment for hepatitis C virus (HCV) infection, even if they are receiving opioid agonist therapy (OAT). Research suggests that HCV in PWID may be treated effectively, but optimal models of care for promoting adherence and sustained virologic response (SVR) have not been evaluated in the direct-acting antiviral (DAA) era.

Objective: To determine whether directly observed therapy (DOT) and group treatment (GT) are more effective than self-administered individual treatment (SIT) in promoting adherence and achieving SVR among PWID receiving OAT.

Design: Three-group, randomized controlled trial conducted from October 2013 to April 2017. (ClinicalTrials.gov: NCT01857245)

Setting: Three OAT programs in Bronx, New York.

Participants: Persons aged 18 years and older with genotype 1 HCV infection who were willing to receive HCV therapy on site in the OAT program. Of 190 persons screened, 158 were randomly assigned to a study group and 150 initiated treatment: DOT (n = 51), GT (n = 48), and SIT (n = 51).

Intervention: 2 intensive interventions (DOT and GT) and 1 control condition (SIT).

Measurements: Primary: adherence, measured by using electronic blister packs. Secondary: HCV treatment completion and SVR 12 weeks after treatment completion.

Results: Mean age was 51 years; 65% of participants had positive results on urine drug testing during the 6 months before treatment, and 75% reported ever injecting drugs. Overall adherence, estimated from mixed-effects models using the daily timeframe, was 78% (95% CI, 75% to 81%) and was greater among participants randomly assigned to DOT (86% [CI, 80% to 92%]) than those assigned to SIT (75% [CI, 70% to 81%]; difference, 11% [CI, 5% to 18%]; Bonferroni-corrected P = 0.001). No significant difference in adherence was observed between participants randomly assigned to GT (80% [CI, 74% to 86%]) and those assigned to SIT (difference, 4.7% [CI, −2% to 11%]; Bonferroni-corrected P = 0.29). The HCV treatment completion rate was 97%, with no differences among groups (P = 0.53). Overall SVR was 94% (CI, 89% to 97%); the SVR rate was 98% in the DOT group, 94% in the GT group, and 90% in the SIT group (P = 0.152).

Limitation: These findings may not be generalizable to PWID not enrolled in OAT programs.

Conclusion: All models of onsite HCV care delivered to PWID in OAT programs resulted in high SVR, despite ongoing drug use. Directly observed therapy was associated with greater adherence than SIT.

Primary Funding Source: National Institute on Drug Abuse and Gilead Sciences.

Ann Intern Med. 2019;170:594-603. doi:10.7326/M18-1715 Annals.org
For author affiliations, see end of text.
This article was published at Annals.org on 9 April 2019.

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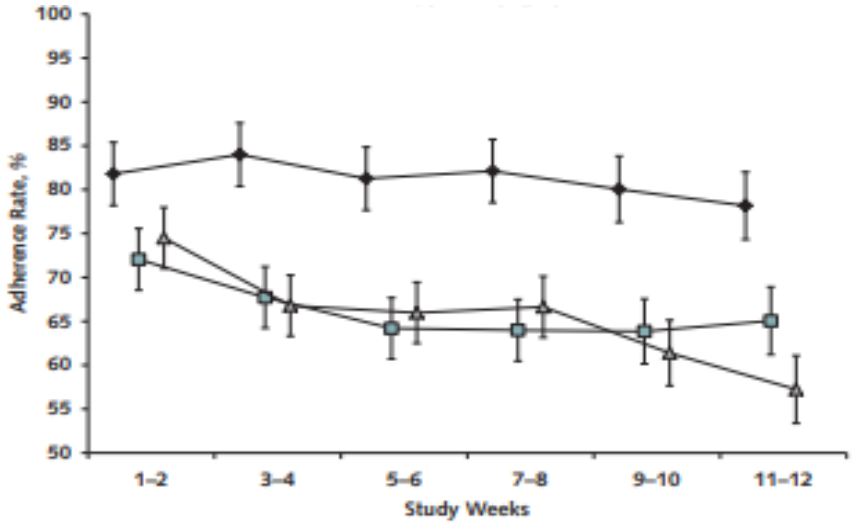
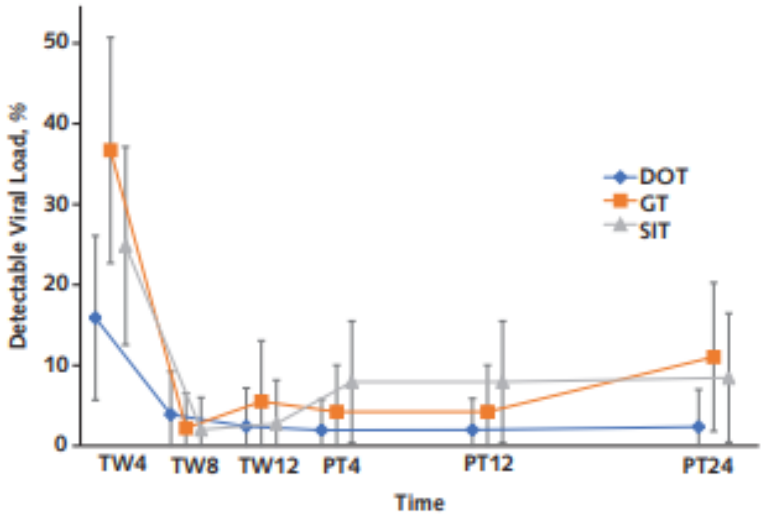
What Did We Learn?
DOT Improves Adherence to HCV Medications and Improves HCV Viral Load



Adherence rates and their error bars are model-based estimates; SEs were obtained from the mixed-effects linear models adjusting for site and the 3 stratifying variables. Three SIT participants with no available blister pack adherence data were not included in this analysis. Error bars represent ± SEs. DOT = directly observed therapy; GT = group treatment; SIT = self-administered individual treatment.



The overall percentages of longitudinal detectable HCV viral loads during and after treatment were significantly different across the 3 groups ($P = 0.021$). Error bars represent 95% CIs. DOT = directly observed therapy; GT = group treatment; HCV = hepatitis C virus; PT = posttreatment week; SIT = self-administered individual treatment; TW = treatment week.

Akiyama, Ann Int Med, 2019

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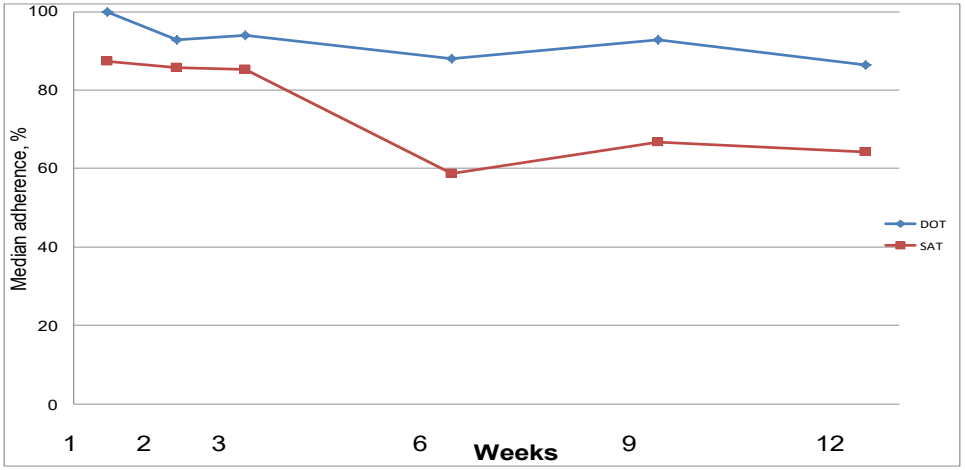
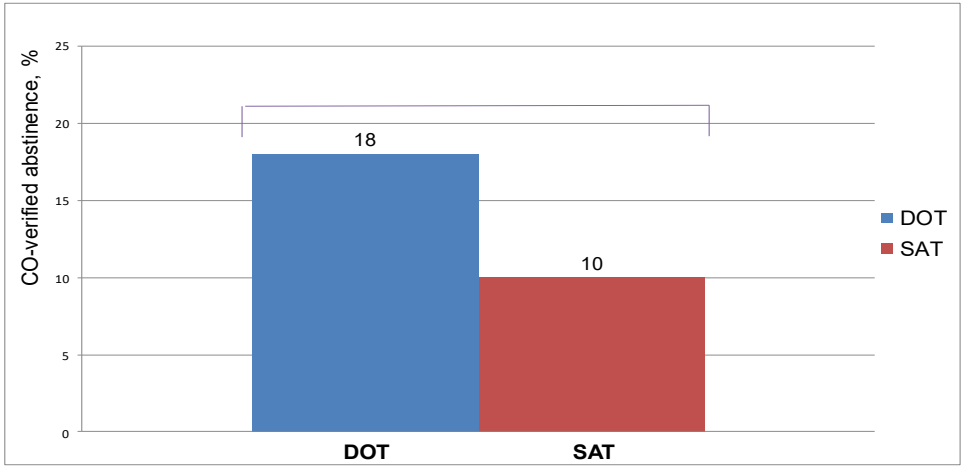
We Expanded the DOT Model to Treatment of Tobacco Dependence with Varenicline: DOT Improves Adherence (and Maybe Cessation)





ADDICTION
SSA
RESEARCH REPORT
doi:10.1111/add.15240

Effect of varenicline directly observed therapy versus varenicline self-administered therapy on varenicline adherence and smoking cessation in methadone-maintained smokers: a randomized controlled trial

Shadi Nahvi[1,2], Tangeria R. Adams[1], Yuming Ning, Chenshu Zhang[1] & Julia H. Arnsten[1,2,3]

Division of General Internal Medicine, Department of Medicine, Albert Einstein College of Medicine/Montefiore Medical Center, Bronx, NY, USA,[1] Department of Psychiatry and Behavioral Sciences, Albert Einstein College of Medicine/Montefiore Medical Center, Bronx, NY, USA[2] and Department of Epidemiology and Population Health, Albert Einstein College of Medicine/Montefiore Medical Center, Bronx, NY, USA[3]

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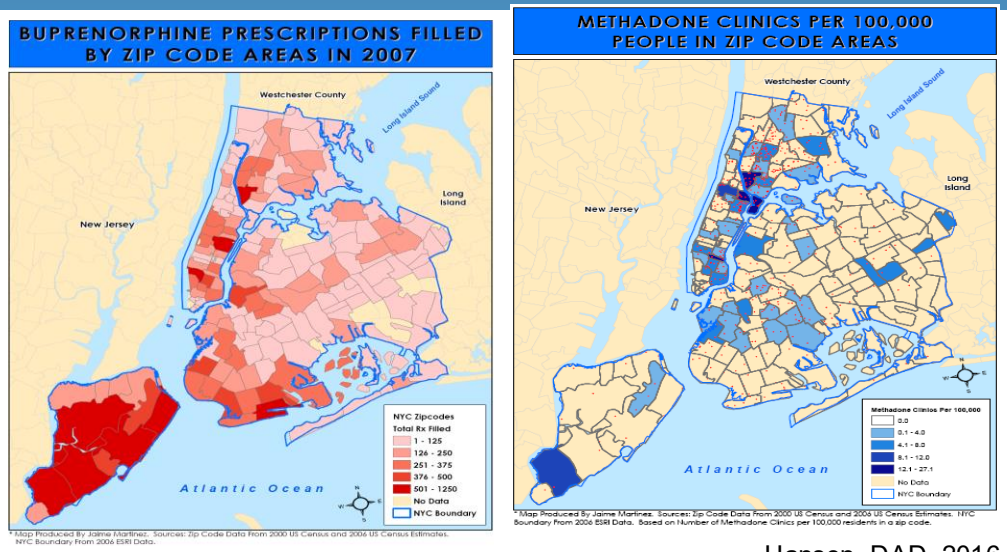
DOT is Associated with Better Health Outcomes, but…

- Successful DOT depends on our current system of frequent pick-ups and observed doses
- The COVD-19 pandemic has showed us that we can offer off-site locations for methadone delivery and greater flexibility in providing take-home doses
- We need to re-imagine the methadone treatment system to preserve – for those who benefit – daily human contact, support, structure, and the option for DOT
- We need to end racist segregation of methadone and buprenorphine treatment



Hansen, DAD, 2016

The methadone treatment systems represents "the legacy of slavery, the legacy of racism, it's the segregation" (Tracie Gardner, vice president for policy advocacy at the Legal Action Center in New York, March 8, 2020)

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Outline

- **My journey to addiction research**
- **Studying HIV adherence among people who use drugs**
- **Developing methadone-based models of care**
  - **DOT works but depends on restrictive methadone regulations**
  - **How to improve methadone and preserve DOT for those who need it?**
- **Building addiction research and care in the Division of General Internal Medicine**
  - **Training new addiction researchers and educating residents about substance use**
  - Expanding treatment options for people of color
    - Buprenorphine treatment network
    - Syringe exchange program-based medical care
    - Medical cannabis program
  - Addiction Medicine fellowship
- What happened in 2020 and how it changed us

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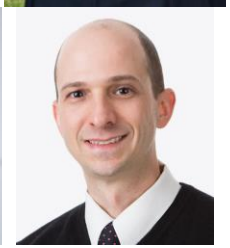
Training Addiction Researchers









Over 12 years, supported 10 junior faculty to become addiction (and HIV) researchers

Their work continues to improve lives of people with SUD. In addition to work already described:

Hillary Kunins: Executive Deputy Commissioner of Mental Hygiene, NYC DOHMH

Oni Blackstock: former assistant commissioner for the Bureau of HIV, NYC DOHMH, Founder and Executive Director at Health Justice

Aaron Fox: Studying innovative group buprenorphine treatment for formerly incarcerated persons

Franchesca Arias: Studied neurocognitive changes associated with OUD

Viraj Patel: Performing research to ensure access to PrEP for young men of color

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Teaching Residents about Substance Use Disorder using an Objective Structured Clinical Exam (OSCE)

The OSCE as a formative evaluation tool for substance abuse teaching

Melissa R Stein, Sharon J Parish & Julia H Arnsten

Context and setting The substance abuse Objective Structured Clinical Examination (OSCE) was designed for third year internal medicine house staff at a large, urban hospital in the north-eastern USA. Our OSCE is a timed, multistation examination in which

SUBSTANCE ABUSE, 34: 350–355, 2013
Copyright © Taylor & Francis Group, LLC
ISSN: 0889-7077 print / 1547-0164 online
DOI: 10.1080/08897077.2013.776658

Routledge
Taylor & Francis Group

Teaching and Assessing Residents' Skills in Managing Heroin Addiction With Objective Structured Clinical Examinations (OSCEs)

Sharon J. Parish, MD
Division of General Internal Medicine, Department of Medicine, Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, New York, USA

Melissa R. Stein, MD
Division of General Internal Medicine, Department of Medicine, and Division of Substance Abuse, Department of Psychiatry and Behavioral Sciences, Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, New York, USA

Steven R. Hahn, MD
Department of Medicine, Jacobi Medical Center and Albert Einstein College of Medicine, Bronx, New York, USA

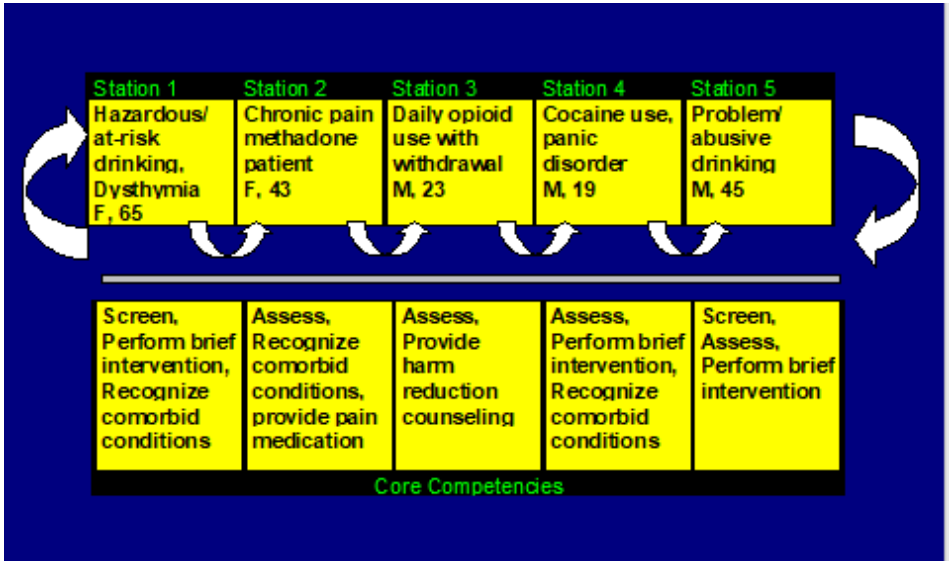
Uri Goldberg, BS
Division of Substance Abuse, Department of Psychiatry and Behavioral Sciences, Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, New York, USA

Julia H. Arnsten, MD, MPH
Division of General Internal Medicine, Department of Medicine, and Division of Substance Abuse, Department of Psychiatry and Behavioral Sciences, Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, New York, USA

Teaching About Substance Abuse with Objective Structured Clinical Exams

Sharon J. Parish, MD,[1] Megha Ramaswamy, MPH,[2] Melissa R. Stein, MD,[1,2] Elizabeth K. Kachur, PhD,[3] Julia H. Arnsten, MD, MPH[1,2,4]

[1]Division of General Internal Medicine, Department of Medicine, Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, NY, USA; [2]Division of Substance Abuse, Department of Psychiarty & Behavioral Sciences, Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, NY, USA; [3]Medical Education Development, New York, NY, USA; [4]Department of Epidemiology & Population Health, Albert Einstein College of Medicine and Montefiore Medical Center, Bronx, NY, USA.



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Stein, Med Educ, 2005; Parish, JGIM, 2007; Parish, Substance Abuse, 2013

Outline

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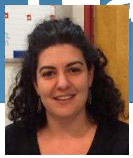
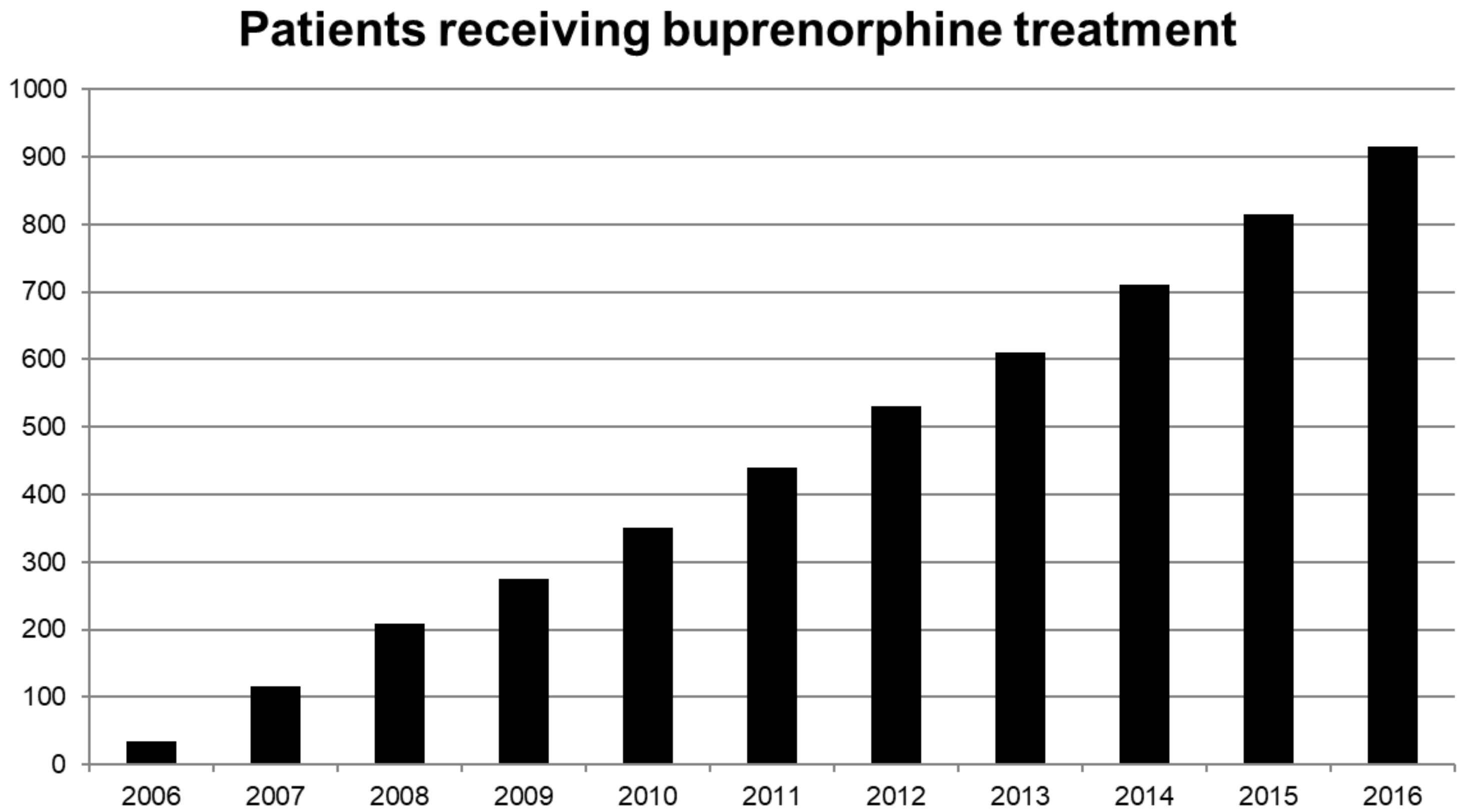
Montefiore Buprenorphine Treatment Program: 10 Years, >900 Patients, >25 Prescribers at One Site







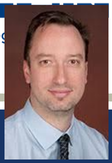











Montefiore's Buprenorphine Treatment Network - NOW

- 2005 ---> 2020
- 6 primary care clinics
- 1 syringe service program

- Treated >1300 patients
- Currently treat 385 patients
- 50 providers
- 5 treatment coordinators

- All FM, IM teaching clinics
- Trained >500 residents

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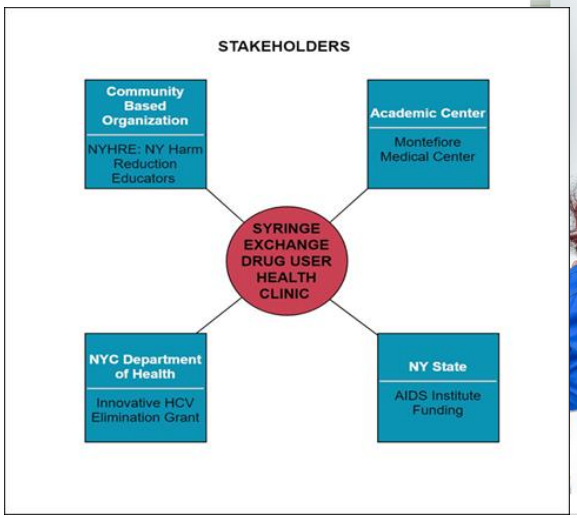
New York Harm Reduction Educators (NYHRE) – Montefiore Drug User Health Clinic

NEW YORK HARM REDUCTION EDUCATORS



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What Happens at NYHRE?

"THE CLINIC"
Open 4 days per week
Montefiore EMR
Montefiore Lab Supplies
5 CLINICIANS
(4 physicians & 1 PA)
2 NURSES (NYHRE)
2 REGISTRATION STAFF (NYHRE)

NYHRE Drop-In Center

- TV, Music, and Hang out Area
- Syringe Distribution
- Supervised Bathrooms
- Showers & Laundry
- Kitchen & Light Food
- Outside Gazebo & Plants

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- Building addiction research and care in the Division of General Internal Medicine
  - Training new addiction researchers and educating residents about substance use
  - Expanding treatment options for people of color
    - Buprenorphine treatment network
    - Syringe exchange program-based medical care
    - Medical cannabis program
  - Addiction Medicine fellowship
- What happened in 2020 and how it changed us

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Outline

- My journey to addiction research
- Studying HIV adherence among people who use drugs
- Developing methadone-based models of care
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Addiction Medicine Fellowship

- Launched 2019
- ACGME-accredited
- HRSA-funded
- Patient-centered models of care
  - Integrated SUD treatment with primary care
  - Low threshold care
- Focus on racial inequities in SUD treatment
- Program Directors: Shadi Nahvi and Melissa Stein

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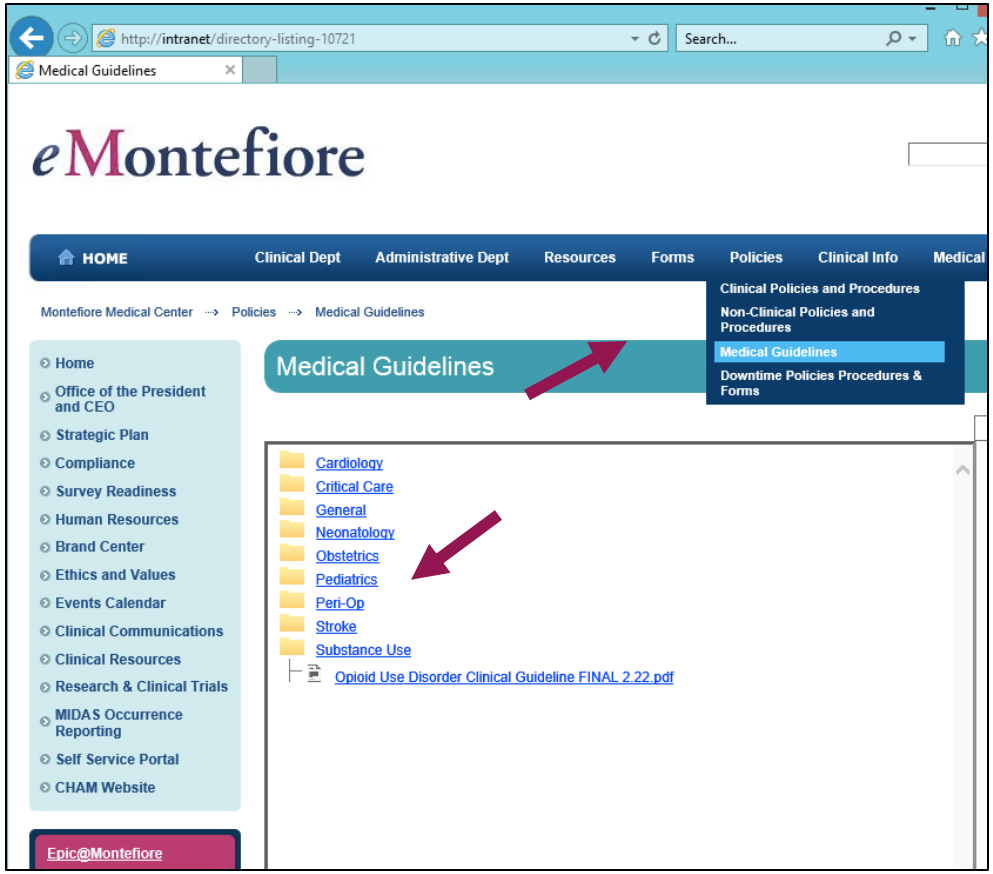
Opioid Use Disorder Management Guidelines



Management of Opioid Use Disorder and Opioid Withdrawal in Hospitalized Patients

Montefiore Medical Center Clinical Guidelines
Issued 2/2020

Introduction

- Substance use disorders (SUDs), including opioid use disorder (OUD), are common in hospitalized patients and withdrawal syndromes frequently complicate hospital admissions, leading to patient-provider discord and increased likelihood that patients leave the hospital against medical advice. Initiating treatment for OUD and appropriate treatment of withdrawal is associated with improved treatment completion, improved SUD treatment outcomes, and improved linkage to outpatient SUD care. This guideline serves as a tool to guide treatment for opioid withdrawal using opioid agonist therapy and treatment of OUD using three FDA approved treatments:
  - Methadone (opioid full agonist)
  - Buprenorphine/naloxone (opioid partial agonist)
  - Naltrexone (opioid antagonist) (used to treat OUD only, NOT opioid withdrawal)

Goals

- The goals of this guideline are to help providers: (1) identify OUD; (2) alleviate opioid withdrawal; (3) initiate OUD treatment; (4) maintain OUD care if patient is already on treatment; and (5) facilitate transition from the hospital to outpatient treatment for OUD.

Clinical Pearl: Treat opioid withdrawal with opioid agonist therapy
Opioid withdrawal management with opioid agonists buprenorphine/naloxone (bup/nlx) or methadone can be initiated for inpatients regardless of patient desire to continue treatment in the outpatient setting.

Instructions for clinical use:

1. Refer to OUD treatment guide.
   a. If patient previously on outpatient OUD treatment, continue per treatment guide.
   b. If patient not on outpatient treatment, proceed to buprenorphine/naloxone or methadone initiation guides.
      i. Provide patient with handout for OUD treatment options.
      ii. Refer to discharge planning guide for appropriate transition to outpatient OUD care.
2. Refer to Table 1 for expert resources or supplements as needed.

Table 1. Resources for Expert Opinion and Clinical Questions

Resources for expert opinion and clinical questions	
For questions on buprenorphine: • Email: bupe@montefiore.org • Use this resource to ask an addiction medicine specialist clarifying questions that do not necessitate a formal consult or full patient evaluation • Expect a reply within 24-48 hours	**For questions on methadone:** • Email: methadone@montefiore.org • Use this resource to ask an addiction medicine specialist clarifying questions that do not necessitate a formal consult or full patient evaluation • Expect a reply within 24-48 hours

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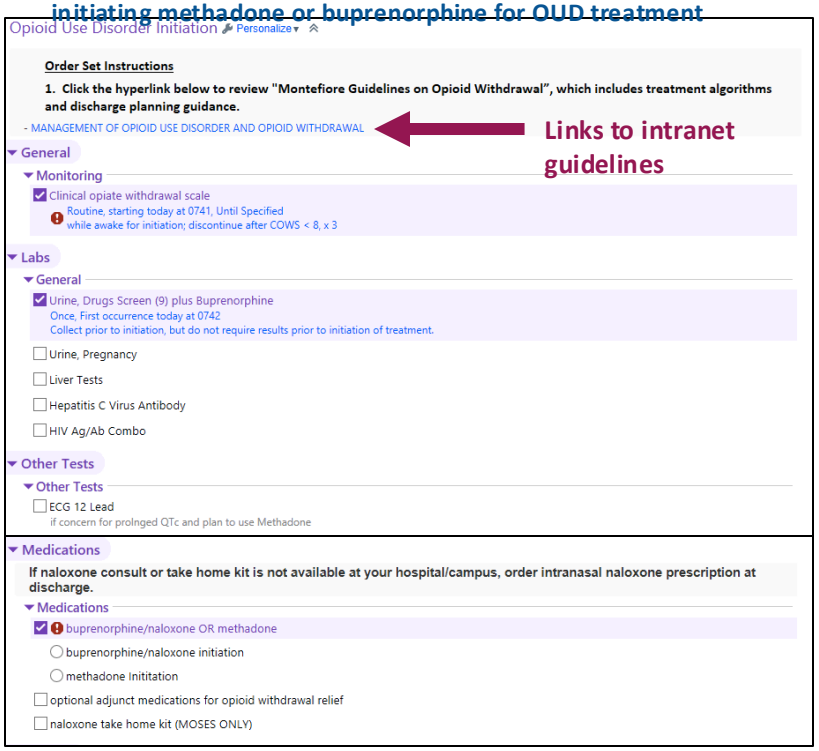
New Opioid Use Disorder Treatment Order Sets

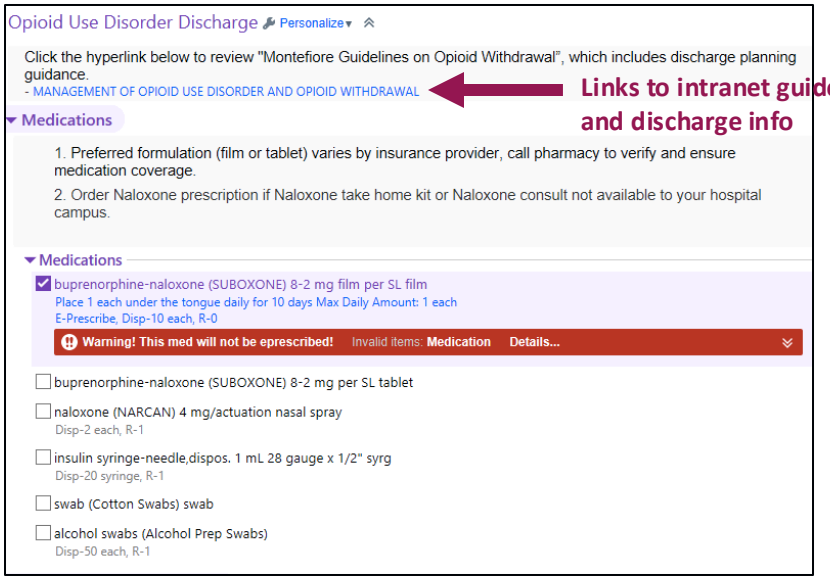
Opioid Use Disorder (OUD) Treatment Initiation Order Set

- For any **inpatient** or **ED provider** to use
- Use for **any patient experiencing opioid withdrawal** or **interested in initiating methadone or buprenorphine for OUD treatment**



Opioid Use Disorder (OUD) Discharge Order Set

- For any **inpatient** or **ED provider** to use
- Use for **patients with OUD being discharged** from hospital or ED



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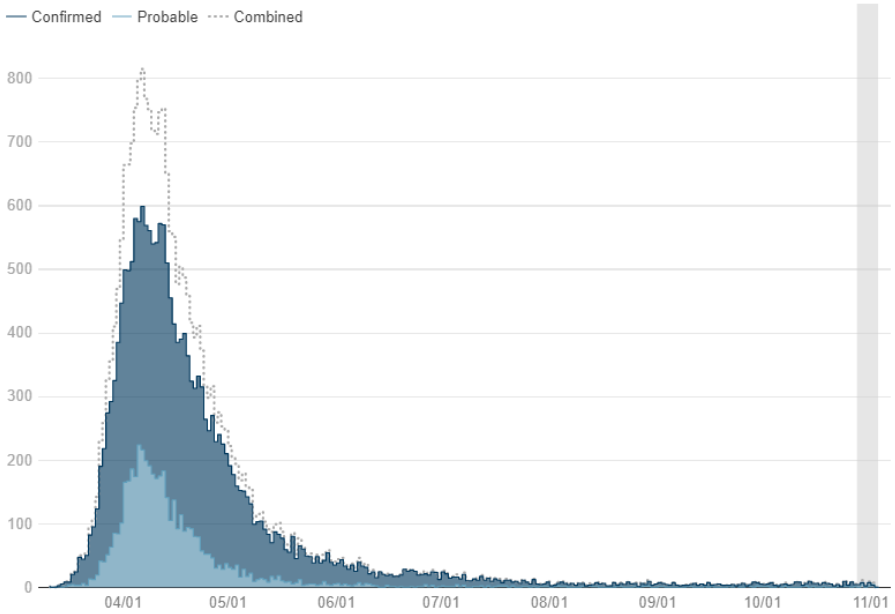
COVID-19 Daily Deaths in NYC

Daily Reported Death Totals

New York City's first confirmed COVID-19 death was reported on March 11. Due to delays in reporting, which can take as long as a week, the most recent data are incomplete.

Daily number of COVID-19 deaths among NYC residents



Gray area indicates that the most recent data are incomplete.

Get the data • Created with Datawrapper

NYC Health

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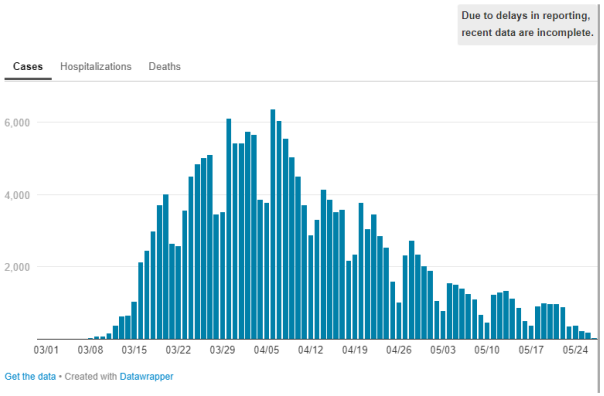
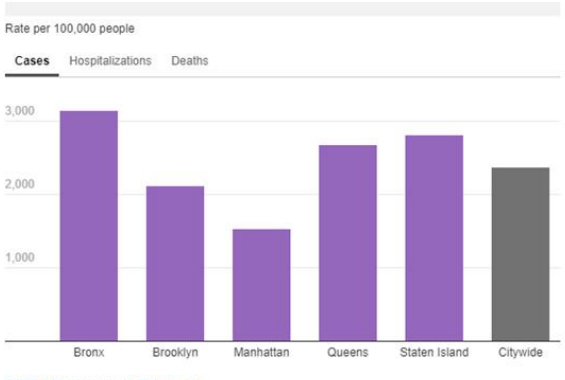
COVID-19 in NYC and by Borough: Cases, Hospitalizations, and Deaths, March-May 2020

Daily Counts

This chart shows the number of confirmed cases by diagnosis date, hospitalizations by admission date and deaths by date of death from COVID-19 on a daily basis since February 29. Due to delays in reporting, which can take as long as a week, recent data are incomplete.





Hospitalization rate by borough is impacted by missing data from a number of facilities. This may artificially lower the rate of hospitalization for some boroughs.

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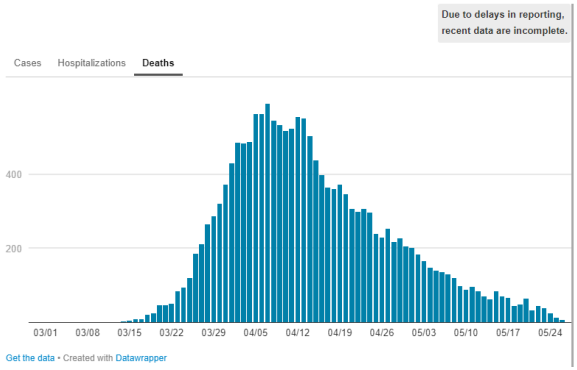

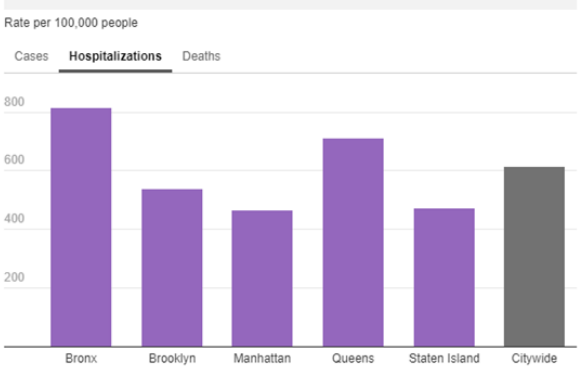

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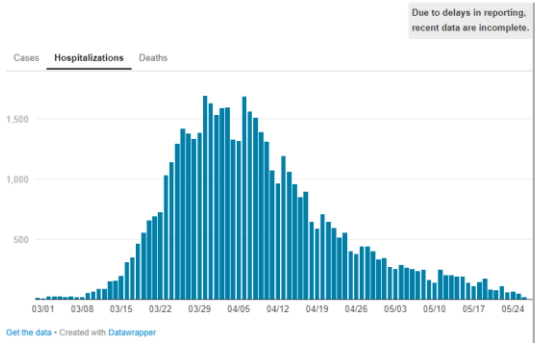

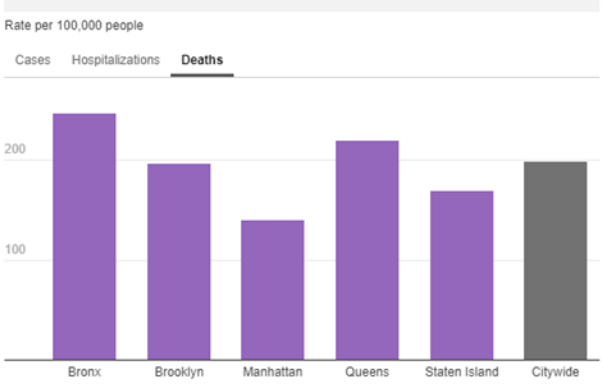

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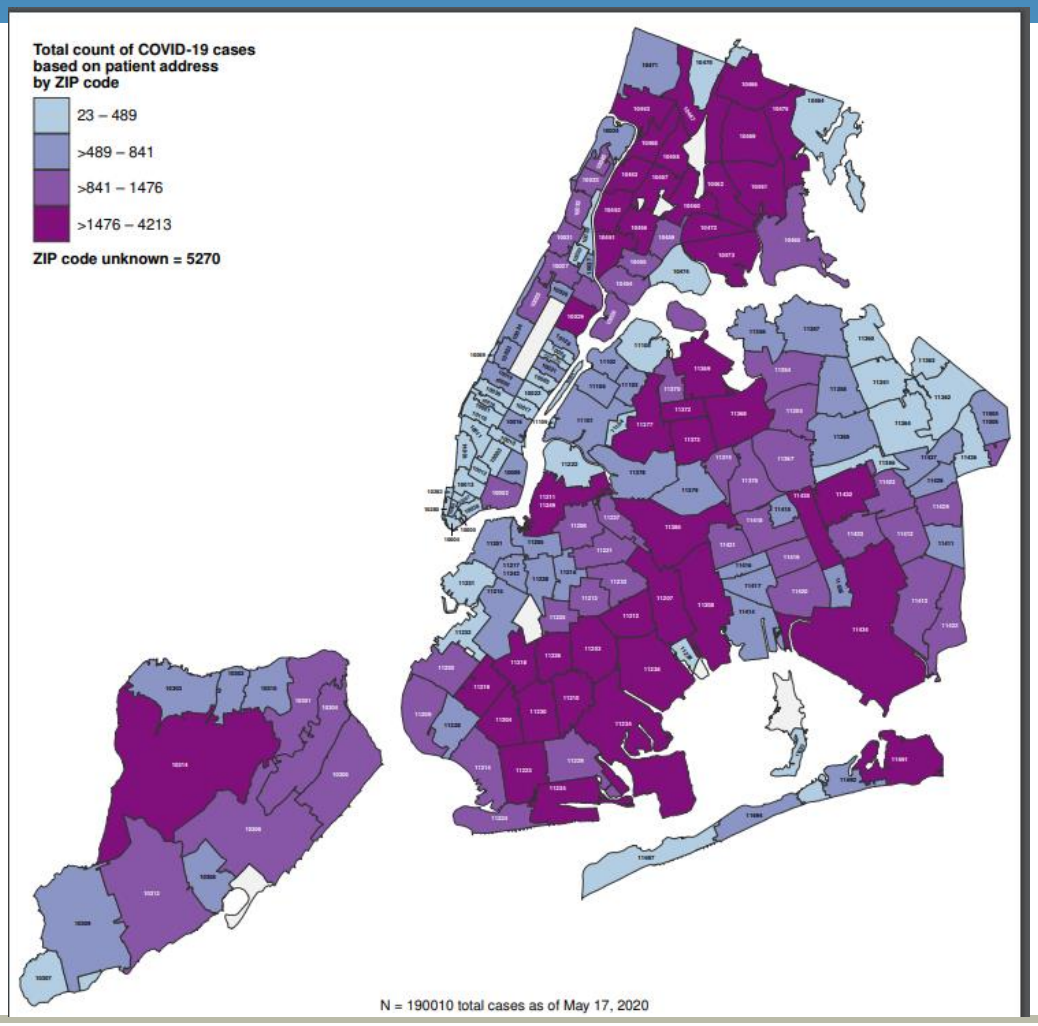
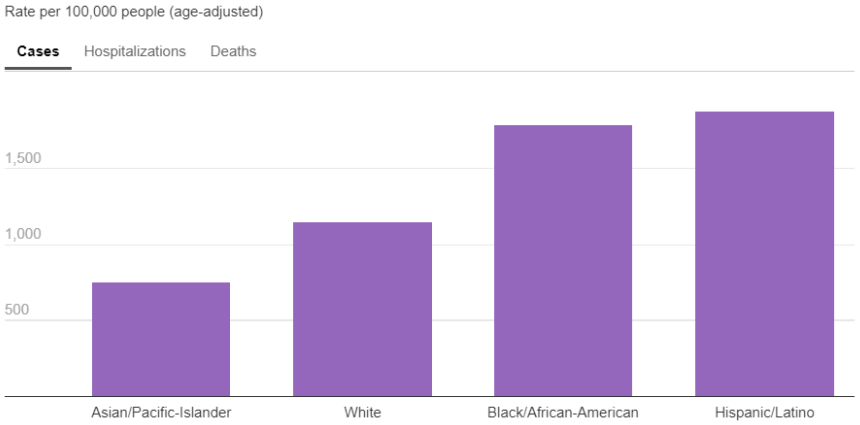
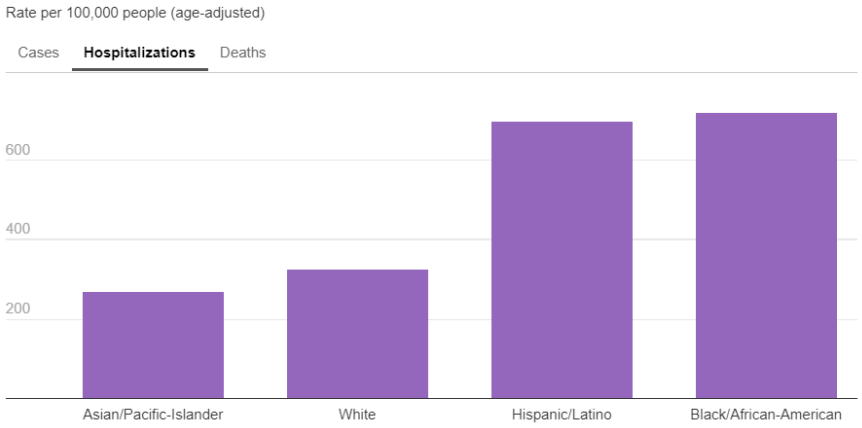
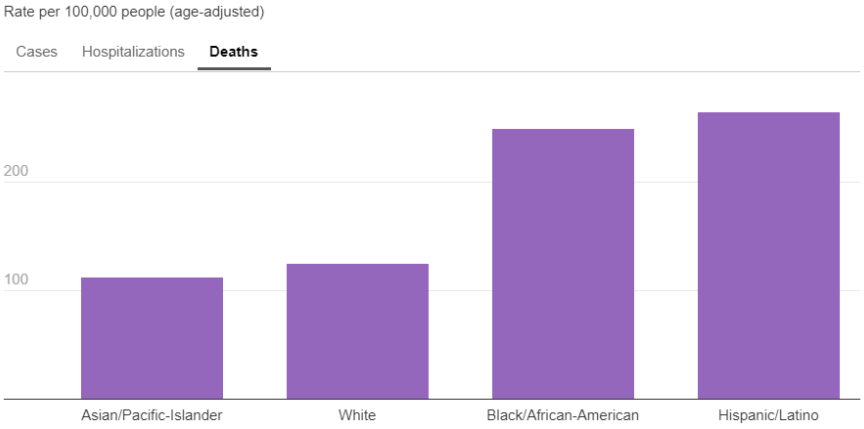
COVID-19 Cases By Zip Code - NYC



Rates of COVID-19 cases, hospitalizations, and deaths by race/ethnicity - NYC







DGIM COVID19 Publications

The NEW ENGLAND JOURNAL of MEDICINE

Perspective

Flattening the Curve for Incarcerated Populations — Covid-19 in Jails and Prisons

Matthew J. Akiyama, M.D., Anne C. Spaulding, M.D., and Josiah D. Rich, M.D.

Because of policies of mass incarceration over the past four decades, the United States has incarcerated more people than any other country on Earth. As of the end of 2016, there were nearly 2.2 million people in U.S. prisons and jails.[1] People entering jails are among the most vulnerable in our society, and during incarceration, that vulnerability is exacerbated by restricted movement, confined spaces, and limit- tuberculosis. Disparities in social determinants of health affecting groups that are disproportionately likely to be incarcerated — racial minorities, persons who are unstably housed, persons with substance use disorders or mental is most commonly spread through injection drug use. Transmission can be reduced using measures known to reduce high-risk behaviors, such as opioid agonist therapy and syringe exchange. Although much of the country has yet to implement these strategies in correctional settings, managing transitions in care to and from the community and providing such services to people after incarceration has a large impact. Simi-

Contents available at PubMed
www.aidsreviews.com

PERMANYER

AIDS Rev. 2020;22:143-147

HIV Prevention and Treatment in the Context of the COVID-19 in the Bronx, New York: Implications for Practice and Research

Viraj V. Patel, Robert Beil, Deepika Slawek, and Matthew J. Akiyama*

Division of General Internal Medicine, Department of Medicine, Montefiore Health System/Albert Einstein College of Medicine, Bronx, NY, United States

Annals of Internal Medicine

ON BEING A DOCTOR

COVID-19: The Worst Days of Our Careers

As physicians who have collectively practiced in the fields of internal medicine, infectious diseases, and addiction medicine in New York City for 37 years, we have witnessed tremendous suffering and faced many feelings as he looked at us with such profound fear, knowing that he could be the next to die. Our hearts sank, and our eyes filled with tears. It was impossible to find words of consolation. Within hours, he could no

ON BEING A DOCTOR

COVID-19: The Worst Days of Our Careers

Chinazo O. Cunningham, MD, MS
Chanelle Diaz, MD
Deepika E. Slawek, MD, MS, MPH
Montefiore Health System and Albert Einstein College of Medicine
Bronx, New York

Corresponding Author: Chinazo Cunningham, MD, MS, Montefiore Health System, Albert Einstein College of Medicine, 111 E. 210th Street, Bronx, NY 10467; e-mail, chinazo.cunningham@einsteinmed.org.

Ann Intern Med. doi:10.7326/M20-1715

Having spent years honing our ability to provide authentic and compassionate patient-centered care, we have been frustrated by our inability to provide this kind of care to our patients with COVID-19. With hos- radiologists, psychiatrists, and more. They have many fears and anxieties because of their lack of both experience in general and expertise in fields other than internal medicine. We have all been thrust into chaotic and unfa-

VIEWPOINT

The Disproportionate Burden of COVID-19 for Immigrants in the Bronx, New York

Jonathan Ross, MD, MS
Division of General Internal Medicine, Montefiore Health System, Bronx, New York; and Division of General Internal Medicine, Albert Einstein College of Medicine, Bronx, New York.

Chanelle M. Diaz, MD, MPH
Division of General Internal Medicine, Montefiore Health System, Bronx, New York; and Division of General Internal Medicine, Albert Einstein College of Medicine, Bronx, New York.

Joanna L. Starrels, MD, MS
Division of General Internal Medicine, Montefiore Health System, Bronx, New York; and Division of General Internal Medicine, Albert Einstein College of Medicine, Bronx, New York.

As general internists who work in the hospitals and outpatient clinics of a large safety-net health system in the Bronx, we care for an ever-increasing number of patients with symptoms of coronavirus disease 2019 (COVID-19) who call our clinics to ask for guidance, seek care in our hospitals, and die in our wards. We are distressed by the disproportionate burden of the COVID-19 pandemic for immigrant patients.

The Bronx, a borough of New York City, is one of the most ethnically diverse urban areas in the US and ranked the least healthy of New York State's 62 counties. It has rates of chronic diseases such as asthma, diabetes, hypertension, obesity, and tobacco use disorder—all factors that appear to increase the risk of complications from COVID-19—that are among the highest in the state.[1] Poor health in the Bronx is due at least in part to decades of policies related to housing, education, environmental health, and criminal justice that have perpetuated racial and economic inequality. Unsurprisingly, the Bronx currently has the highest rate of COVID-19 diagnoses and deaths among New York City's boroughs.[2] More than half a million immigrants live in the borough, and most speak a language at home other than English. Immigrants in the Bronx are disproportionately represented in the essential workforce at risk for exposure to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), including physicians, nurses, nursing aides, home health aides, subway and bus drivers, grocery clerks, and others. The limited sociodemographic data available for COVID-19 cases in New York City show that Hispanic or Latinx individuals, who constitutemost immigrants in the erroneous. A man with fever, fatigue, and diarrhea was confident that he did not have COVID-19 because he had held his breath for 10 seconds and had not coughed, repeating a myth that has circulated online in many languages despite being refuted by the World Health Organization.[5] Even with substantial symptoms of COVID-19, patients also fear the immigration-related consequences of going to the hospital. Immigrant patients are highly susceptible to the combination of elevated rates of exposure to SARS-CoV-2, misinformation about its transmission and disease course, and hesitancy to access care.

Caring for hospitalized patients has also revealed particular challenges for immigrants. Because visitors have been barred from hospitals, patients face their illness alone in a foreign space, without families who often serve as cultural mediators between them and the health system. Staff have reduced both the frequency and amount of time they spend in patients' rooms to minimize exposure and conserve personal protective equipment, and doors to patients' rooms are often kept closed. Trying to communicate with anyone while speaking through an N95 mask, plastic face shield, and full personal protective equipment is difficult; to do so via a telephone interpreter with a patient who is short of breath and speaks a different language feels particularly depersonalizing and inadequate. We can only begin to imagine how terrifying the experience is for patients. In addition, with outpatient practices closed, our posthospital discharge plans often seem tenuous for immigrant patients—particularly those who are undocumented, who

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How We Are Working To Be Anti-Racist

- After the murders of George Floyd, Breonna Taylor, and Armand Aubrey in the spring of 2020, we began a series of open discussions about racism in health care, in academic medicine, and in our own Division, Department, and larger institutions.
- We assembled a Divisional task force of faculty and staff to provide structure for these conversations, perform a rigorous self-assessment, and help chart a way forward.
- We advocated to our Department for the appointment of a Vice Chair for Diversity (recruitment now underway).
- We committed to learning, continual self-assessment, avoidance of complacency, listening to experts, establishing forums for communication, collecting data, and creating space for this work.

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Lessons Learned About Leadership

- Understand the needs of the local communities we serve, and strive continuously for greater and more evolved understanding
- Find ways to build programs and services that are consistent with what the community needs, and bring the large institution along (if they are not there)
- Working with faculty and staff, identify and honor people's passions, spend time learning what motivates them, find resources for them, then *get out of their way*
- Be transparent and honest about what it is like to work at our institution, ensure that you are "walking the walk" by not avoiding the frontline work
- Use knowledge (gained over years) of institutional norms, culture, and people to help faculty and staff achieve their goals; be a trusted guide
- Be generous with your time; enjoy the success of others
- Strive to advance social justice and racial equity
- Be your authentic self

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The people who really get it all done!

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Thank You For Listening

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