

The Hospital as a Reachable Moment

Terry Horton, MD
Chief, Division of Addiction Medicine
Christiana Care Health System
November 16, 2017



Overview

- 1. Project Engage**
- 2. Addressing opioid withdrawal on the medical floor of a hospital provides a reachable moment to engage opioid use disordered patients**
- 3. Christiana Care's response**

**No Financial
Disclosures**

Project Engage

- Since 2008, 2000 patients/yr in the Inpt hospital, ED and outpt clinics
- Imbedded Peer counselor from local drug treatment program
- Bedside peer-to-peer intervention using Motivational Interviewing
- Partnering with a Social Worker for rapid discharge planning





ADDICTION SCIENCE &
CLINICAL PRACTICE

Early data from project engage: a program to identify and transition medically hospitalized patients into addictions treatment

Anna Pecoraro, Terry Horton, Edward Ewen, Julie Becher, Patricia A Wright, Basha Silverman, Patty McGraw, and George E Woody

- N = 415 patients
- 180 (**43%**) were admitted for SUD treatment
- Significant reductions in inpt and Er utilization with concomitant savings (approx **\$3000/pt seen**)

Addiction Science & Clinical Practice
2012, 7:20 doi:10.1186/1940-0640-7-20



CHRISTIANA CARE
HEALTH SYSTEM

Program Evaluation 2012-15



¹ Christiana Care Health System, Newark, DE ²Department of Psychiatry, University of Pennsylvania, Philadelphia, PA ³NIDAClinical Trials Network, Delaware Valley Node ⁴Institute for the Psychological Sciences, Divine Mercy University, Arlington VA

Preliminary Results of the Project Engage Program Evaluation:

A BIFRT Program to Engage Medically Hospitalized Patients with Substance Use Disorders into Treatment

Terry Horton MD¹, Anna Pecoraro PsyD^{2,3,4}, Claudine Jurkowitz MD MPH¹, Beverly Wilson MS¹, Bailey Ingraham MS¹, George Woody MD^{2,3}



1. Background

- Patients with untreated substance use disorders (SUDs) often present to hospitals for treatment of substance-related medical problems and are associated with increased healthcare utilization
- Project Engage (PE) is a bedside intervention using peer counselors to help facilitate referral to community-based SUDs specialty care and followup medical treatment
- Peer counselors are screened, trained, and supervised by our partner, Brandywine Counseling and Community Service.
- Peer Counselors employ early engagement strategies based on motivational interviewing and on sharing of their recovery histories.
- Peer counselors are assisted by a team of social workers who are expert in community resources.
- PE was implemented at Christiana Care Health System, the region's largest not-for profit health care providers, serving the people of Delaware, Maryland, Pennsylvania and New Jersey in 2008
- Patients are identified through AUDIT-PC⁵, positive single drug use question, or clinical suspicion.
- PE was piloted on the medical floors of Wilmington Hospital in 2008 and at Christiana Hospital in 2012.
- Results from a pre-post analysis in 25 patients using Medicaid over a 12 month period in 2010 showed:
 - 58% (\$68,422) decrease in in-patient medical admissions
 - 13% (\$3,308) decrease in emergency department visits
 - 32% (\$18,119) decrease in behavioral health/substance abuse admissions
 - 32% (\$963) increase in outpatient behavioral health/substance abuse visits
 - Overall decrease of \$88,886 (Pecoraro et al. 2012)

2. Program Evaluation Methods

Objective

- To assess the efficacy of program Engage on:
 - Post discharge SUD treatment engagement
 - Self-reported treatment engagement and substance use at 6 month followup
- Hypothesis:** 30% of patients seen by PE would engage in post-discharge treatment, and those who did would have less substance use at six-month follow-up

Study Setting

- Christiana Care Health System
- A large Mid-Atlantic health care system with two hospitals

Study population

- Patients hospitalized for medical reasons at Christiana or Wilmington Hospitals who had a SUD and
- were seen by Project Engage Peer Counselors between 5/2012-7/2015
- Accepted SUD treatment
- Provided research informed consent for a baseline and 6 months followup interviews
- Patients were given a \$20 gift card to complete the 6 months followup interview

Study Design

- Prospective observational study with pre/post evaluation at 6 months follow-up
- Baseline questionnaires included ASI-Lite, DSM-IV SUD Checklist, CES-D
- Follow-up questionnaires included ASI-Lite and CES-D
- Demographic and clinical data were extracted from the Electronic Medical Record

Statistical Analysis

- Participants were included in the statistical analyses if they met DSM-IV diagnostic criteria for alcohol and/or drug dependence and reported recent (past 30 days) use of the substance(s) upon which they were dependent at baseline
- Non-parametric methods were used to calculate *p* values and 95% confidence intervals (CI).

3. Results

- A total of 319 patients enrolled in the study
 - Of 319 participants
 - 222 completed follow-up
 - 192 were dependent on alcohol and/or drug with recent use (past 30 days) at baseline
 - Characteristics at baseline (n=192)
 - Mean age was 43 (SD=11) years
 - 60% were male, 77% Caucasian, 3% Hispanic
 - 73% had Medicaid/Medicare
 - 91% scored ≥ 16 on the CES-D
 - 37% had >4 medical comorbidities
 - 5% were homeless
 - 53% (n=102) were dependent on alcohol only; 32% (n=61) drugs only, and 15% (n=29), both.

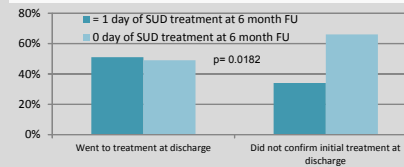


Figure 1. Patients who went to SUD treatment at discharge and are still in treatment at 6 months follow-up (n=192)

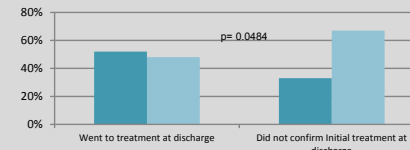


Figure 2. Alcohol only dependent patients who went to SUD treatment at discharge and are still in treatment at 6 months follow-up (n=102)

The association between attending initial SUD treatment at discharge and sustained treatment at 6 months was not significant for patients with drug only or drug and alcohol dependence (n=90)

Table 1. Difference in number of days of use between baseline and FU

	Patients with alcohol dependence	Patients with drugs dependence or both drugs/alcohol
Difference in number of days of use between baseline and 6 months FU, median (95% CI)	-15 (-20, -10) p<0.0001*	-14 (-17, -9) p<0.0001*

* Wilcoxon signed-rank test

- 65% of alcohol dependent patients reported no alcohol use at 6 months
- 60% of drug only or drug and alcohol dependent patients reported no alcohol use at 6 months

4. Conclusions

Conclusions

- PE patients who attended post-discharge SUD treatment seemed to have enduring benefits in SUD treatment engagement, as well as reduced substance use at follow-up.
- PE is a potentially effective addition to existing hospital services.

Limitations

- Conducted in a single healthcare system.
- Further research such as a multi-center randomized clinical trial may be needed to validate these results

Related Citations

Pecoraro A., Horton T., Ewen E., Becher J., Wright P.A., Silverman B., ... Woody G. E. (2012). Early data from project engage: A program to identify and transition medically hospitalized patients into addiction treatment. *Addiction Science & Clinical Practice*, 7(1), 20.

Pecoraro A., Ewen E., Horton T., Mooney R., Kolm P., McGraw P., et al. (2013). Using the AUDIT-PC to Predict Alcohol Withdrawal in Hospitalized Patients. *Journal of General Internal Medicine*, 1-7.

Contact Information:

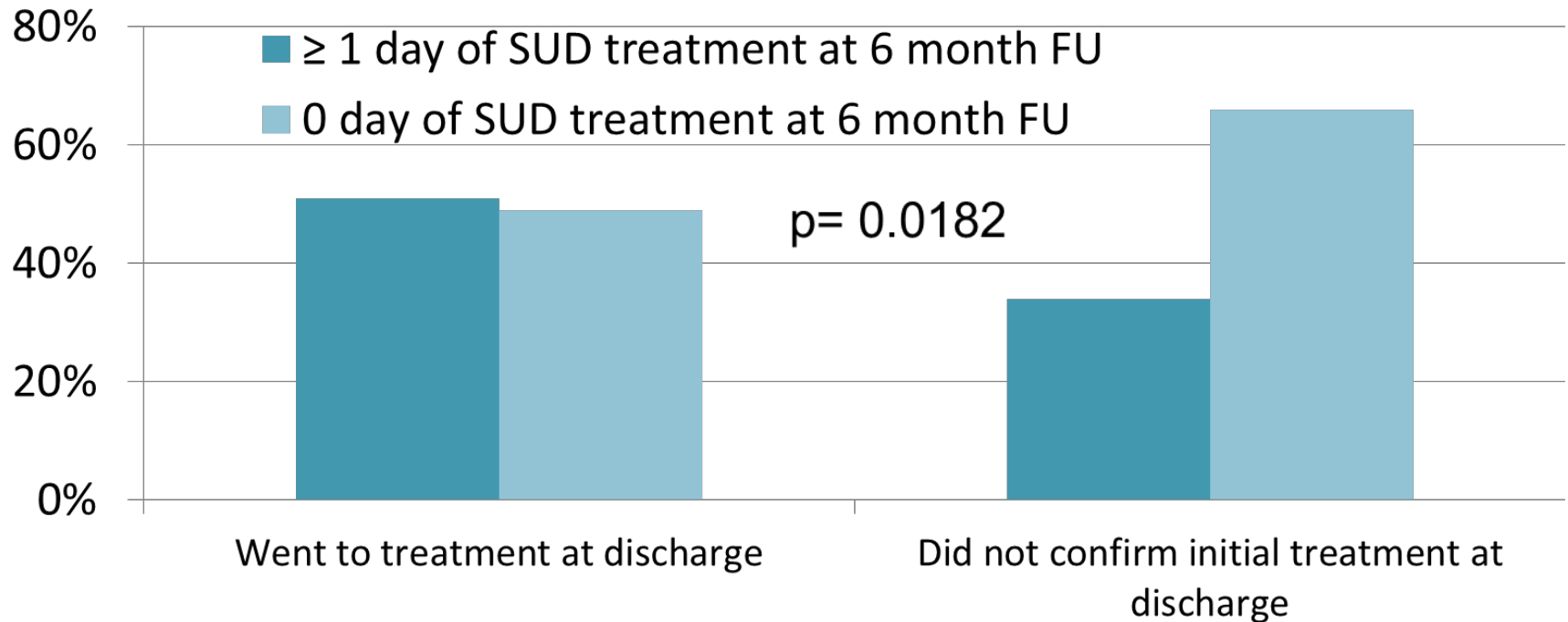
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 George Woody, MD woodyg@mail.med.upenn.edu

Program Evaluation

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Program Evaluation

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Program Evaluation

Difference in number of days of use between baseline and FU

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Program Evaluation

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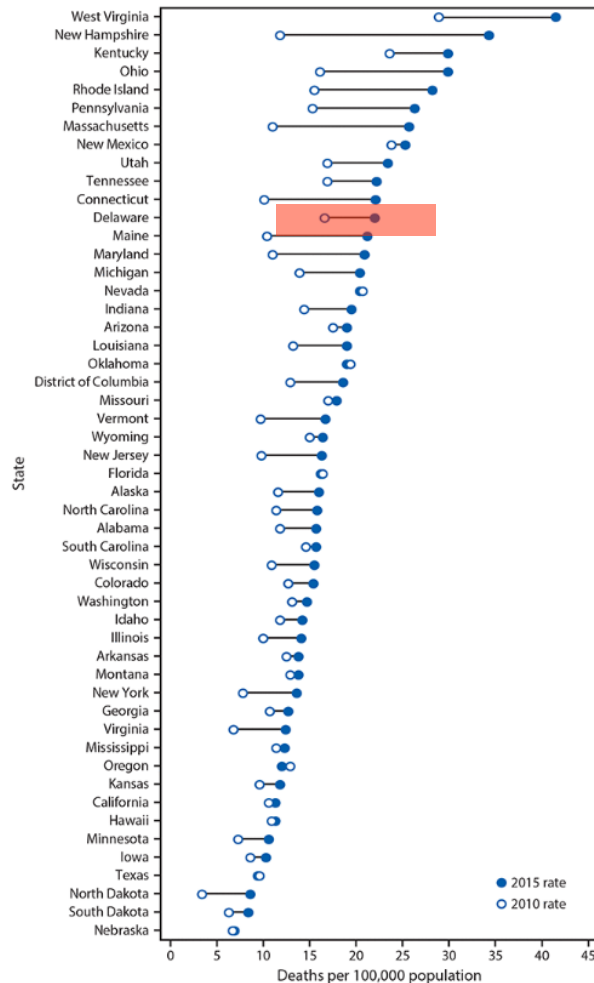
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National Death Rate Increasing

FIGURE. Age-adjusted rate* of drug overdose deaths,† by state — 2010 and 2015[§]



Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

Increases in Drug and Opioid-Involved Overdose Deaths — United States, 2010–2015

Weekly / December 30, 2016 / 65(50-51); 1445–1452

- 12.3 per 100,000 population in 2010 to 16.3 in 2015.
- Death rates increased in 30 states and DC
- During 2015, 52,404 persons died from a drug overdose
- 33,091 (63.1%) involved an opioid
- Death rates for natural/semisynthetic opioids, heroin, and synthetic opioids other than methadone increased by 2.6%, 20.6%, and 72.2%, respectively

Hospitals Aggregate the Addicted

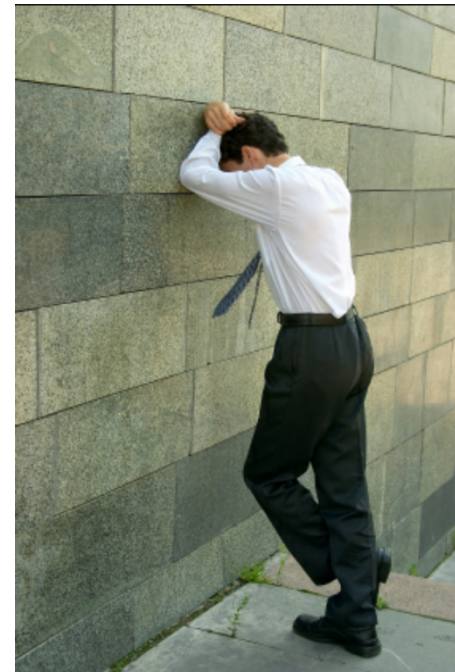
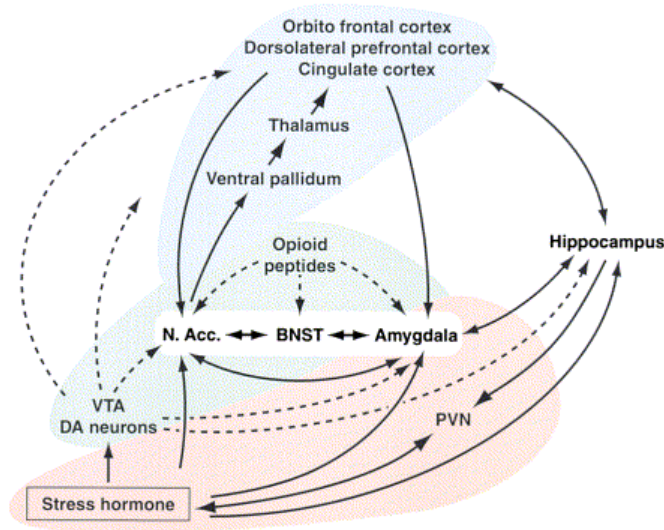
- Doors are always open
- Substance use disorders are common and severe*
- High dosages of heroin/fentanyl
- **IVDA** instead of inhaled
- Early medical sequelae
- Increasing OD rate



* Saitz, JGIM, 2006; Bertholet, JGIM, 2010

Opioid Withdrawal

- With dependence, brain mal adapts
- Collection of reproducible symptoms when opioids are removed – PRIMAL MISERY
- Highly motivating



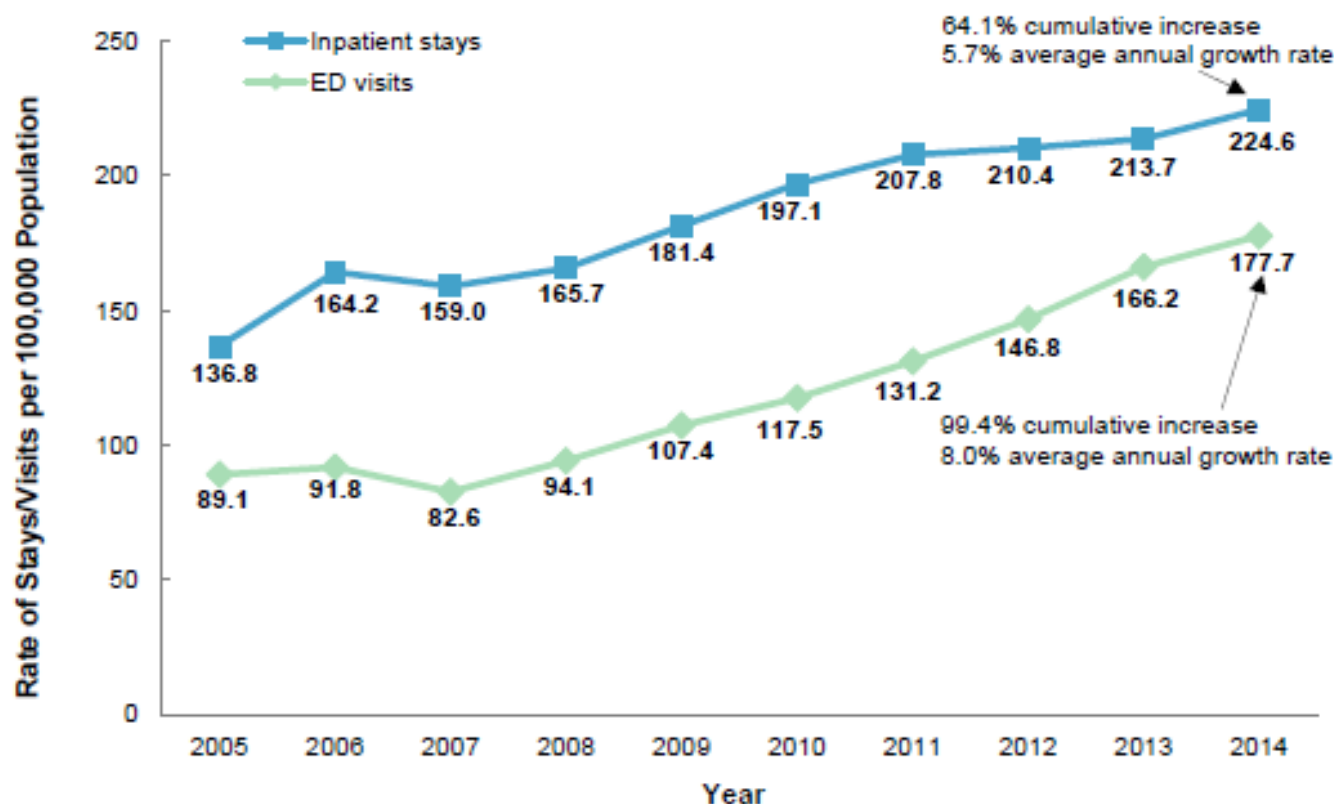
Opioid Withdrawal is a Safety Issue

Poorly addressed opioid withdrawal negatively impacts:

1. ability to address acute serious health consequences of addiction
2. ability to engage and transition into community-based drug treatment

Rising Opioid-related Inpt and ED Visits

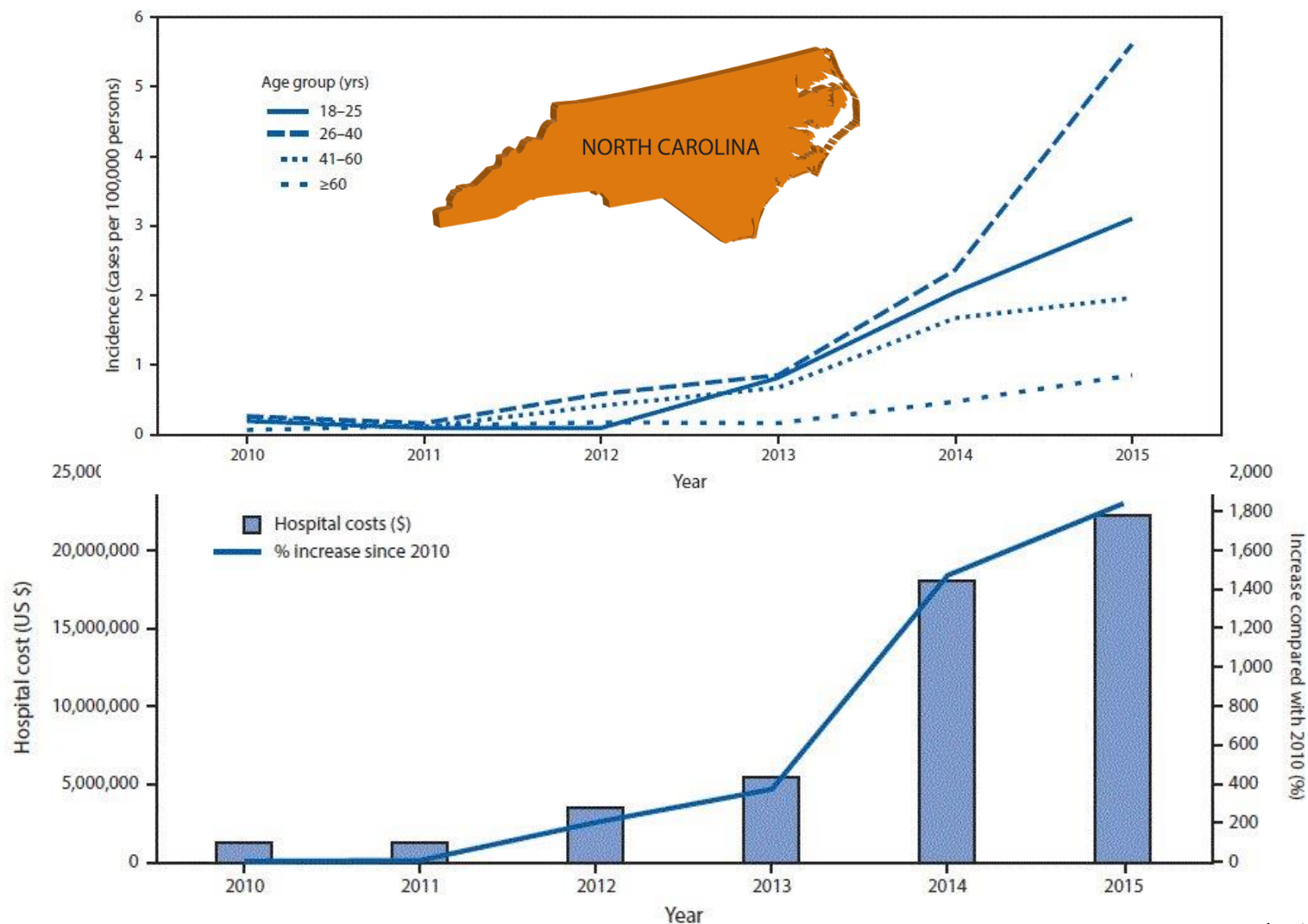
Figure 1. National rate of opioid-related inpatient stays and emergency department visits, 2005–2014



Abbreviation: ED, emergency department

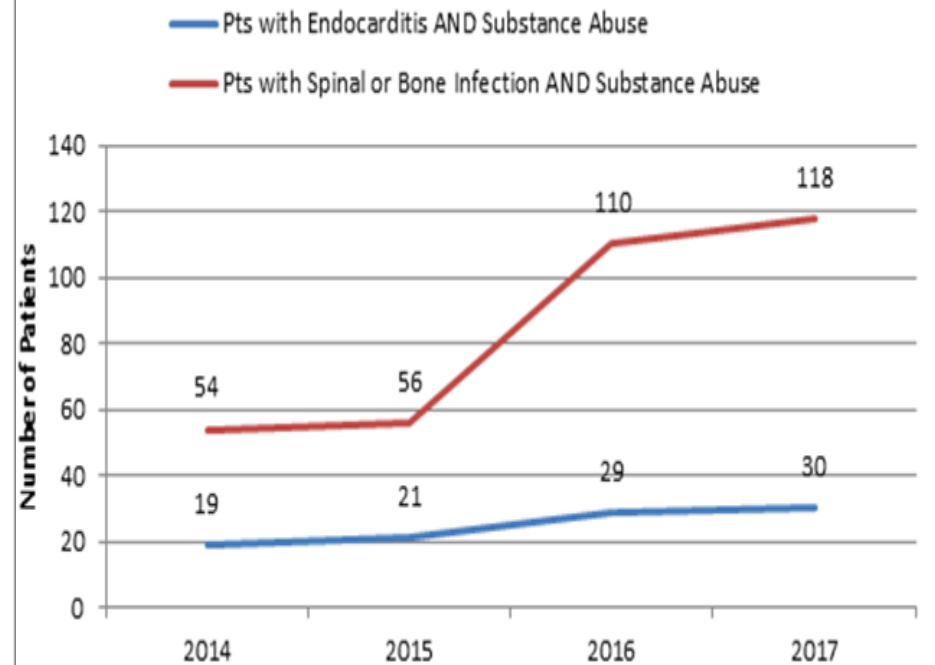
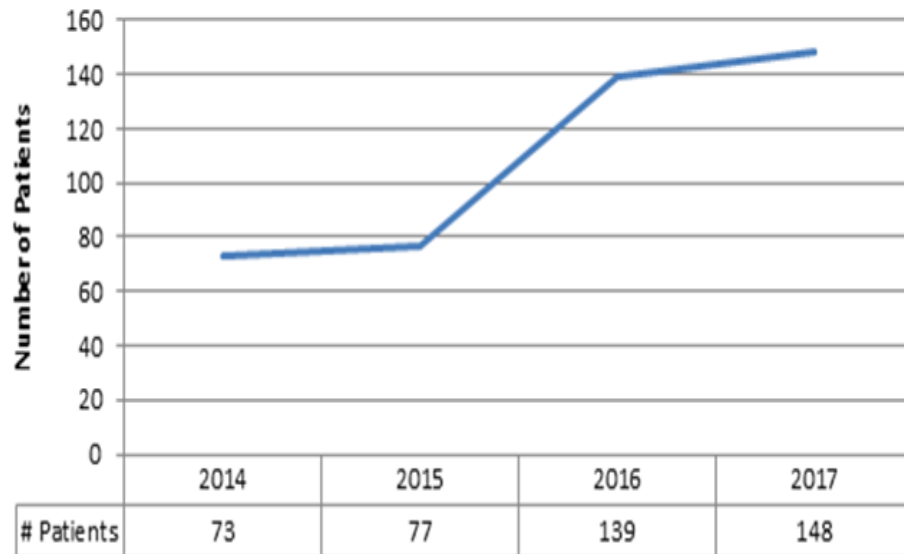
Source: Agency for Healthcare Research and Quality (AHRQ), Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project (HCUP), HCUP Fast Stats, Opioid-Related Hospital Use (<http://www.hcup-us.ahrq.gov/faststats/landing.jsp>) based on the HCUP National (Nationwide) Inpatient Sample (NIS) and the HCUP Nationwide Emergency Department Sample (NEDS)

Drug-related Endocarditis 2010-15 in NC



Impact on CCHS

Patients with Endocarditis, Spinal or Bone Infections AND Substance Abuse



- Rates of endocarditis, spinal and bone infections are increasing
- Each requires 6 week hospitalization for IV ABX via PICC line
- Anticipate 6216 bed days used in 2017

Intervening on the Medical Ward

JAMA Internal Medicine

Research

Original Investigation

Buprenorphine Treatment for Hospitalized, Opioid-Dependent Patients A Randomized Clinical Trial

Jane M. Liebschutz, MD, MPH; Denise Crooks, MPH; Debra Herman, PhD; Bradley Anderson, PhD; Judith Tsui, MD, MPH; Lidia Z. Meshesha, BA; Shernaz Dossabhoy, BA; Michael Stein, MD

IMPORTANCE Buprenorphine opioid agonist treatment (OAT) has established efficacy for treating opioid dependency among persons seeking addiction treatment. However, effectiveness for out-of-treatment, hospitalized patients is not known.

OBJECTIVE To determine whether buprenorphine administration during medical hospitalization and linkage to office-based buprenorphine OAT after discharge increase entry into office-based OAT, increase sustained engagement in OAT, and decrease illicit opioid use at 6 months after hospitalization.

DESIGN, SETTING, AND PARTICIPANTS From August 1, 2009, through October 31, 2012, a total of 663 hospitalized, opioid-dependent patients in a general medical hospital were identified. Of these, 369 did not meet eligibility criteria. A total of 145 eligible patients consented to participation in the randomized clinical trial. Of these, 139 completed the baseline interview and were assigned to the detoxification (n = 67) or linkage (n = 72) group.

INTERVENTIONS Five-day buprenorphine detoxification protocol or buprenorphine induction, intrahospital dose stabilization, and postdischarge transition to maintenance buprenorphine OAT affiliated with the hospital's primary care clinic (linkage).

MAIN OUTCOMES AND MEASURES Entry and sustained engagement with buprenorphine OAT at 1, 3, and 6 months (medical record verified) and prior 30-day use of illicit opioids (self-report).

RESULTS During follow-up, linkage participants were more likely to enter buprenorphine OAT than those in the detoxification group (52 [72.2%] vs 8 [11.9%], $P < .001$). At 6 months, 12 linkage participants (16.7%) and 2 detoxification participants (3.0%) were receiving buprenorphine OAT ($P = .007$). Compared with those in the detoxification group, participants randomized to the linkage group reported less illicit opioid use in the 30 days before the 6-month interview (incidence rate ratio, 0.60; 95% CI, 0.46-0.73; $P < .01$) in an intent-to-treat analysis.

CONCLUSIONS AND RELEVANCE Compared with an inpatient detoxification protocol, initiation of and linkage to buprenorphine treatment is an effective means for engaging medically hospitalized patients who are not seeking addiction treatment and reduces illicit opioid use 6 months after hospitalization. However, maintaining engagement in treatment remains a challenge.

TRIAL REGISTRATION clinicaltrials.gov Identifier: NCT00987961

JAMA Intern Med. 2014;174(6):1369-1376. doi:10.1001/jamainternmed.2014.2556
Published online June 30, 2014.

Invited Commentary
page 1377

CME Quiz at
jamanetworkcme.com

Author Affiliations: Clinical Addiction Research and Education Unit, Section of General Internal Medicine, Department of Medicine, Boston Medical Center, Boston, Massachusetts (Liebschutz, Crooks, Tsui, Dossabhoy); Department of Medicine, Boston University School of Medicine, Boston, Massachusetts (Liebschutz, Tsui); Department of General Internal Medicine, Butler Hospital, Providence, Rhode Island (Herman, Anderson, Stein); Department of Medicine, The Warren Alpert Medical School of Brown University, Providence, Rhode Island (Herman, Anderson, Stein); Department of Psychology, The University of Memphis, Memphis, Tennessee (Meshesha).

Corresponding Author: Jane M. Liebschutz, MD, MPH, Boston Medical Center, 801 Massachusetts Ave, Second Floor, Boston, MA 02118 (jane.liebschutz@bmc.org).

- N = 139 opioid-dependent patients admitted into a general medical hospital
- 5 day bup induction, stabilization and transition vs. detox
 - **Improved linkage 72.2% vs 11.9%,**
($P < .001$)
 - **6 months retention 16.7% vs 3.0%**
($P = .007$)
 - **less illicit opioid use in the 30 days before the 6-month interview**
(incidence rate ratio, 0.60; 95%CI, 0.46-0.73; $P < .01$)

CCHS Response to the Opioid Epidemic

- 2016: Behavioral Health partnered with Acute Care Service Line
- Inpatient Medical Service
 - Screening and Identification of admitted patients
 - Rapid treatment of withdrawal by medical team
 - Inpatient initiation of drug abuse treatment
 - Addiction Medicine Consultation Service
 - Referral to community-based care using Project Engage

Opioid Withdrawal Clinical Pathway

- **Opioid Withdrawal Risk Assessment (OWRA)**

Yes to either question prompts patient for next screening process – COWS assessment of withdrawal.

Information obtained from	<input checked="" type="radio"/> Patient <input type="radio"/> Other
Name	
Relationship	
* Have you used heroin or prescription pain medications other than what was prescribed in the last week?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Refused <input type="radio"/> Unable to respond
* Do you get sick if you can't use heroin, methadone or prescription pain medications?	<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="radio"/> Denies Use <input type="radio"/> Refused <input type="radio"/> Unable to respond

Abbreviations

Instructions

Clinical Opioid Withdrawal Scale (COWS)

- ★ **Resting Pulse Rate:**
(Measured after patient is sitting or lying for one minute.)

- ☐ Pulse rate 80 or below
- ☒ Pulse rate 81-100
- ☐ Pulse rate 101-120
- ☐ Pulse rate greater than 120

- ★ **Sweating:**
(Over past half hour not accounted for by room temperature or patient activity)

- ☒ No report of chills or flushing
- ☐ Subjective report of chills or flushing
- ☐ Flushed or observable moistness on face
- ☐ Beads of sweat on brow or face
- ☐ Sweat streaming off face

- ### * Restlessness Observation During Assessment

- ☐ Able to sit still
☐ Reports difficulty sitting still, but is able to do so
☐ Frequent shifting or extraneous movements of legs/arms
☒ Unable to sit still for more than a few seconds

- ★ **Pupil Size**

- ☒ Pupils pinned or normal size for room light
- ☐ Pupils possibly larger than normal for room light
- ☐ Pupils moderately dilated
- ☐ Pupils so dilated that only the rim of the iris is visible

- Bone or Joint Aches**
* (If patient was having pain previously, only the additional component attributed to opiate withdrawal is scored)

- ☐ Not present
☐ Mild diffuse discomfort
☐ Patient reports severe diffuse aching of joints/muscles
☒ Patient is rubbing joints or muscles and is unable to sit still because of discomfort

Gender:Male

Loc:C5A; 5A06; B

Orders

[+ Add](#) |
 [Document Medication by Hx](#) |
 [Reconciliation](#) ▾ |
 [External Rx History](#) ▾ |
 [Rx Plans \(2\): UCS DELAWARE ...](#) ▾

Orders Medication List

 Add to Phase ▾ Start: ... Duration: ...

View

Gen Opioid'

Gen General Ac

Gen General A

... Heme VTE V

ders

☒ Orders to Rep☒ Admission

☒ **Condition**

☒ **Vital Signs**

Activity

☒ **Nursing Order**☐ Respiratory Ca☒ Nutrition Serv☒ Continuous In☒ Medications

☒ **Laboratory**

☐ Transfusion Se

☒ **Diagnostic Te:**















☒ Imaging

Consults

☐ Medical Supply

Diagnoses & Problems

Related Results

\$	Offset	▼	Component	Status	Details
			 ***Consider the benefit and risk of concurrent treatment with buprenorphine among those also receiving benzodiazepines. Buprenorphine can increase the risk of the patient experiencing lethargy, respiratory depression or coma. ***		
			 <div style="background-color: #00FFFF; padding: 5px; text-align: center;"> Buprenorphine Doses for COWS score ≥ 8, check <u>BOTH</u> once orders <u>AND</u> the Q1 </div>		
<input type="checkbox"/>			 buprenorphine-naloxone (Buprenorphine/Naloxone 4/1 mg (subOXONE))		Dose = 1 EA, SL, Once Dose 1
			 <u>AND</u>		
<input type="checkbox"/>	+1 hr		 buprenorphine-naloxone (Buprenorphine/Naloxone 8/2 mg (subOXONE))		Dose = 1 EA, SL, Once Dose 2. If COWS score ≥ 10 above
			 <u>AND</u>		
<input type="checkbox"/>	+13 hr		 buprenorphine-naloxone (Buprenorphine/Naloxone 4...		Dose = 1 EA, SL, Q12H TIMED, for 4
			 Adjuvant Symptom Control Medications:		
<input type="checkbox"/>			 acetaminophen (Acetaminophen (Tylenol))		Dose of 650 MG, PO, Q6H, PRN *See *as needed for myalgias. Do not ex
<input type="checkbox"/>			 ibuprofen (Ibuprofen (Motrin / Advil))		Dose of 400 MG, PO, Q6H, PRN *See *as needed for myalgias, if acetamin
<input type="checkbox"/>			 loperamide (Loperamide (Imodium A-D))		Dose of 4 MG, PO, Once, PRN Diarr
<input type="checkbox"/>			 magnesium hydroxide (Magnesium Hydroxide (Milk ...		Dose = 30 ML, PO, Once, for: Const
<input type="checkbox"/>			 ondansetron (Ondansetron ODT (Zofran ODT))		Dose of 8 MG, PO, Q8H, PRN Nause
<input type="checkbox"/>			 traZOdoNE (traZOdoNE (Desyrel))		Dose of 50 MG, PO, QHS, PRN Inso

▲ Details

Dx Table

Orders For Cosignature

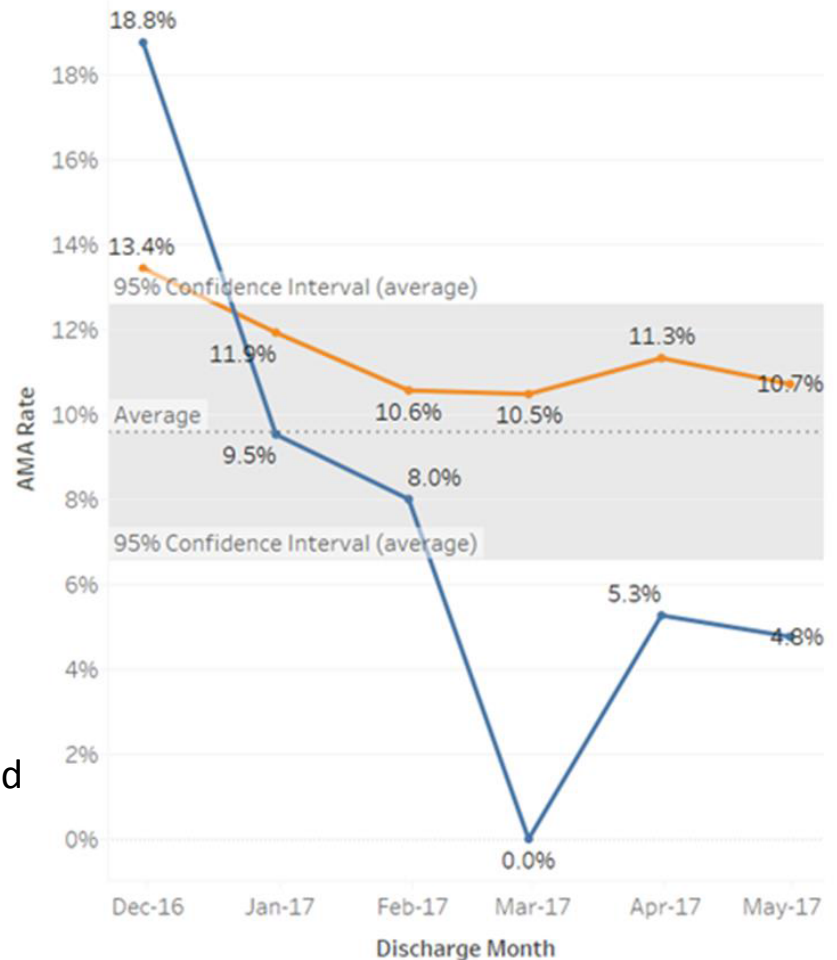
Orders For Nurse Review

Opioid Withdrawal Clinical Pathway Results

7 months of performance	#	%
Total Medical Service Admissions	34,503	
Total Medical Service Admission Screened	24,748	72
Total Screened positive	767	3.1
Showing opioid withdrawal COWS > 8	173	.7

- 22.5% of screen + have opioid withdrawal
- 49.7% of patients in Opioid Withdrawal (COWS>=8) receive bup/naloxone
- Estimate identifying 300+ opioid use disordered patients a year not engaged in treatment
- Value Institute partnering on validation study

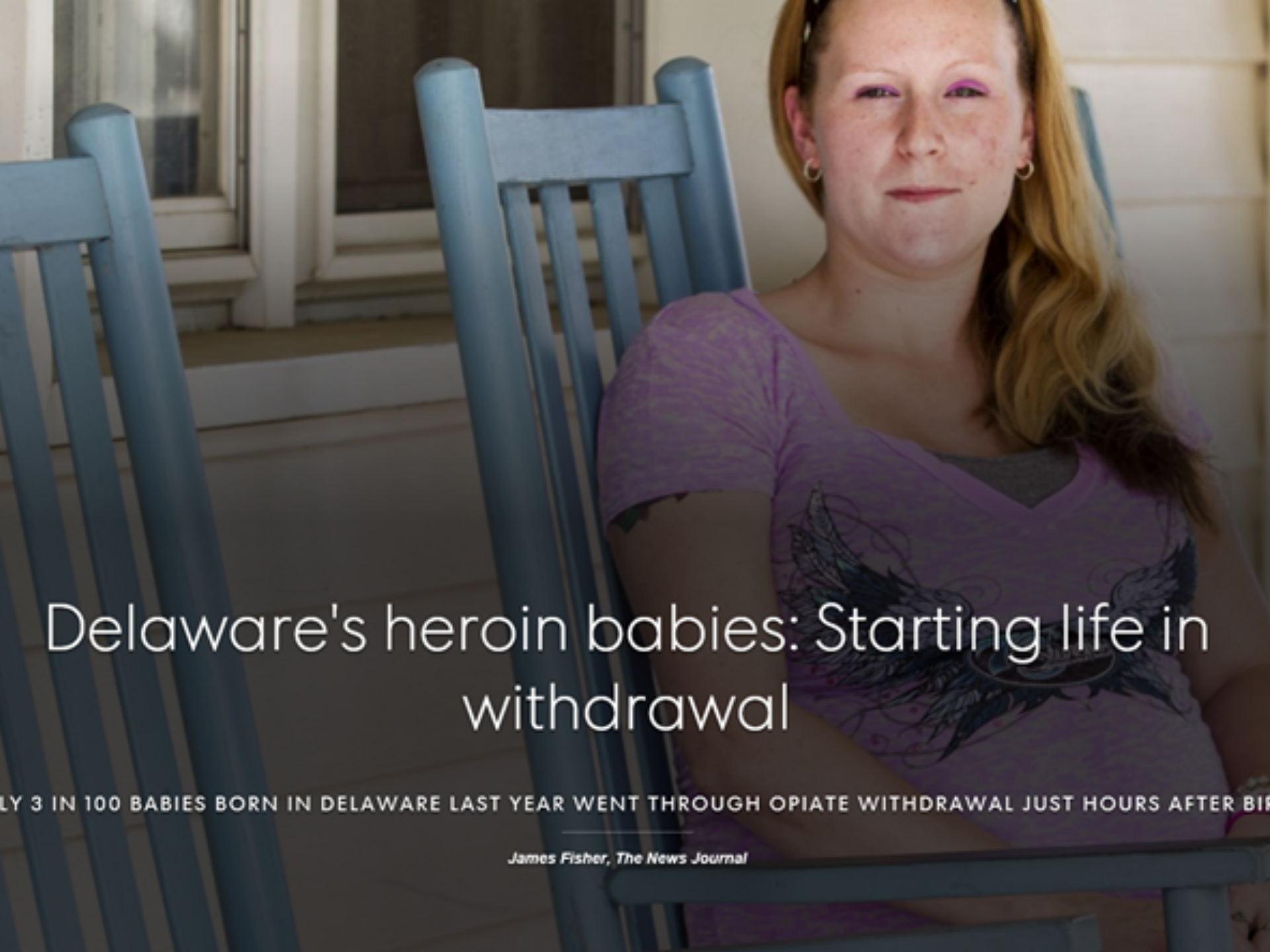
AMA Rates for Patients with Opioid Withdrawal Diagnosis
Dec 2016 through May 2017



Reachable Moment

Early Outcomes from Addiction Medicine CL

- 53/86 (**62%**) asked to remain on agonist therapy and transition to community care
 - Only 27/86 refused
 - 4/86 already in care
 - 12/ 86 ama, rest into nursing homes or ICU
- 10/27 (37%) who refused, signed out AMA vs 4% accepting
- 41/53 (**78%**) successfully attended their initial appt
- 29/40 (**71%**) retained at least 1 month at the community program
- 180 patients, **2/3** requesting MAT of which **63%** remain in MAT at one month



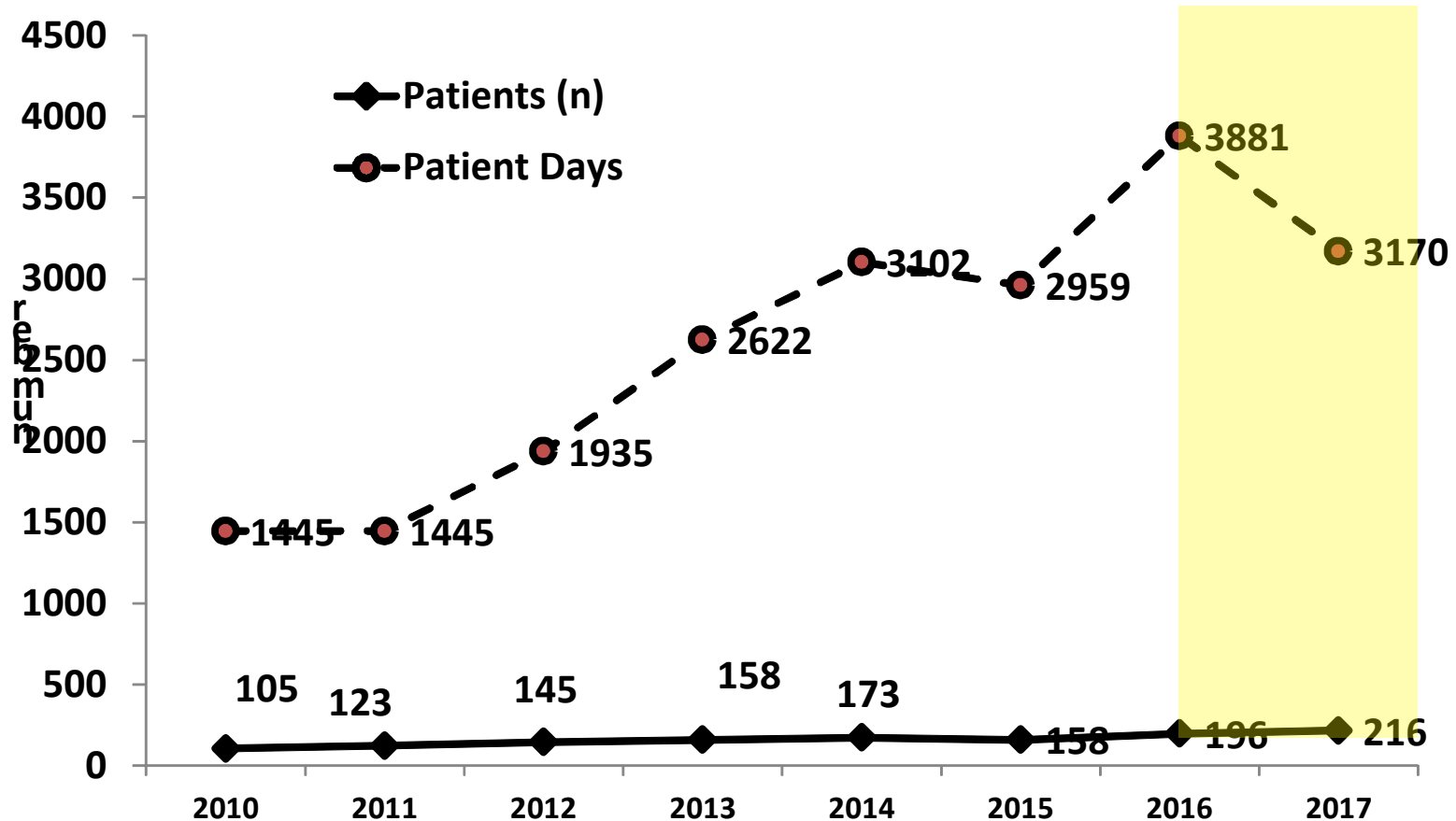
Delaware's heroin babies: Starting life in withdrawal

ONLY 3 IN 100 BABIES BORN IN DELAWARE LAST YEAR WENT THROUGH OPIATE WITHDRAWAL JUST HOURS AFTER BIRTH

James Fisher, The News Journal

NAS Patient Days

Christiana Hospital 2010 -2017 (est. q1-2)



Modified from
Zadzielski, 2017



CHRISTIANA CARE
HEALTH SYSTEM

Summary

A background image showing a person walking across a suspension bridge over a river. The bridge is made of wooden planks and ropes. The person is wearing a red shirt and dark pants. The background is a hazy, mountainous landscape.

- 1. Project Engage helps engage pts into community-based care**
- 2. Opioid withdrawal provides a reachable moment**
- 3. Opioid pathway is showing early success identifying, engaging and transitioning patients into early recovery**
- 4. Efforts are improving the NAS experience**