The Opioid Epidemic in Delaware: A Perspective from the Hospital

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Overview

1. Addiction and Opioids
2. Disturbing Trends
3. Prevention
4. Treatment
5. Christiana Care’s Response
   • Opioid Withdrawal Pathway
   • Project Engage
Case: Jason

21 yo landscaper admitted December 1 with fever, chills and chest pain.

- Blood cultures positive for Staph Aureus
- Echocardiogram showed 3 cm vegetation on his tricuspid valve = endocarditis
- IV antibiotics started
- Day 2 of admission a nurse found him injecting heroin in the bathroom
Opioids

Heroin, morphine, oxycodone, hydrocodone, hydromorphone all interact on the Mu receptor

- Relieve pain
- Euphoria
- Dependence/withdrawal with repeated use
- Addiction
Addiction: an Acquired Brain Disease

- Repeated drug use in vulnerable patients
- Reward and motivational circuits involved
- Compulsive drug seeking, use, and craving despite harmful consequences
Opioid Withdrawal

• With dependence, brain mal adapts
• Collection of reproducible symptoms when opioids are removed – PRIMAL MISERY
• Highly motivating
Why So Popular?

Access

Perceived Harm

Effect
Prescription Drug Epidemic

The relentless marketing of pain pills. Crews from one small Mexican town selling heroin like pizza. The collision has led to America’s greatest drug scourge.

The True Tale of America’s Opiate Epidemic
DREAMLAND
SAM QUINONES

• Date and Time
  Thurs, October 27, 2016
  7:00 PM – 9:00 PM

• Cab Calloway
  School of the Arts
  100 N DuPont Rd
  Wilmington, DE 19805

• Free
Prescription Drug Epidemic

• 1996, release of extended-release oxycodone
• 2000, Joint Commission on Accreditation of Healthcare Organizations defines standards of care requiring assessment and treatment of pain
• Increased access to opioids through more prescribing
  – Pharma aggressively markets to physicians *
  – Pill mills **
• Less perceived harm or stigma

** Sam Quinones, Dreamland: The True Tale of America’s Opiate Epidemic, 2015
Prescription Drug Epidemic

Supply side efforts reduced availability and increased cost of prescription opioids.

- Heroin is cheaper.
- Heroin is easier to get.
- Heroin is easier to inject.
- Heroin is purer than ever.
- Heroin is now more acceptable.

Adapted from “Heroin. How did we get here?” Matthew Ellis, 4th Annual Addiction Medicine Symposia, CCHS, August 30, 2016
Switching to Heroin

Opioid Use Disorder in Young Adults

2002-14 National Survey on Drug Use and Health

- “Emerging adults 37% increase in the odds of having an opioid disorder, and young adults doubled their odds from 11% to 24%.
- 4X and 9X increase over time in the odds of heroin use among emerging adults and young adults who used opioids without a medical prescription”
A Different Kind of Heroin Epidemic

- Previously heroin use concentrated in poor communities of color
- Current demographics radically different
  - White, young, F=M, most employed
  - Very very high dosages of heroin
  - IVDA instead of inhaled
  - Early medical sequelae
  - Late medical sequelae?
FDA requires strong warnings for opioid analgesics, prescription opioid cough products, and benzodiazepine labeling related to serious risks and death from combined use

Action to better inform prescribers and protect patients as part of Agency’s Opioids Action Plan
How the Epidemic of Drug Overdose Deaths Ripples Across America

By HAELYOUN PARK and MATTHEW BLOCH  JAN. 19, 2015

Overdose deaths per 100,000

2003  2004  2005  2006

2007  2008  2009  2010

2011  2012  2013  2014
In Delaware

Estimated population = 900,000
• 90000 alcohol/drug disordered*
• 9000 opioid dependent
• Only 10% in treatment**, ***
• 2014 - 189 overdose deaths, 9th in nation with 20.9 per 100,000 compared to U.S. average of 14.7****
• January through Aug. 21, 136 suspected overdose deaths****

* 2004-2005 NSDUH data
** Wright et al. 2007
*** Delaware Department of Health and Social Services (DHSS), Division of Substance Abuse and Mental Health, 2007
**** Secretary Landgraf, 4th Annual Addiction Symposium, CCHS, August 30, 2016
Overall Strategy

- Prevention of use and overdose
- Identify those in need of care
- Engage into treatment
- Retain in treatment
- Challenges
  - Motivational gap
  - Knowledge
  - Stigma
  - Access to care
  - Fragmented
Overall Strategy - Prevention

- Prevention
  - Reduce access
    - Responsible prescribing
    - Interdiction
  - Increase perceived harm
Death rates from opioid overdose were reduced in 19 communities where overdose education and naloxone distribution was implemented.
Treatments

- Outpatient
- Inpatient
- Drug-free
- Medication-Assisted Treatment (MAT)
- Fellowship – Narcotics Anonymous
FDA-Approved Anti-Opioid Agents

<table>
<thead>
<tr>
<th>Agent</th>
<th>Dose</th>
<th>Dosing</th>
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<tbody>
<tr>
<td>Buprenorphine sublingual film, tablets (generic)</td>
<td>PO: 2 mg, 8 mg film and tablets</td>
<td>Initial: 2–4 mg (Increase by 2–4 mg)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Daily: ≥8 mg</td>
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<td></td>
<td></td>
<td>Max: 24 mg/day</td>
</tr>
<tr>
<td>Methadone tablets/liquid (generic)</td>
<td>PO: 5 mg, 10 mg, tablets; 10 mg/mL liquid</td>
<td>Initial: 10-30 mg (Reassess in 3–4 hours; add ≤10 mg PRN)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Daily: 60-120 mg</td>
</tr>
<tr>
<td>Naltrexone XR injection (Vivitrol®)</td>
<td>IV/IM: 380 mg in 4 cc</td>
<td>Every 4 weeks</td>
</tr>
<tr>
<td>Naltrexone tablets (generic)</td>
<td>PO: 50 mg</td>
<td>Daily: 50 mg (May give 2–3 daily doses at once on M–W–F)</td>
</tr>
</tbody>
</table>

Gastfriend, MD. “Medication-Assisted Treatments (MAT) for Opioid Use Disorder”, 4th Annual Addiction Medicine Symposium, Delaware, August, 2016
Methadone

- Dolophine – Germany 1937
- Rockefeller University 1965
- More effective than non-pharmacological approaches in retaining patients in treatment and in the suppression of heroin use as measured by self report and urine/hair analysis (6 RCTs, RR = 0.66 95% CI 0.56-0.78)

Mattick RP, Breen C, Kimber J, Davoli M. Methadone maintenance therapy versus no opioid replacement therapy for opioid dependence. Cochrane Database of Systematic Reviews 2009
**MMT: Impact on Treatment & Heroin Use**

During the 6 Mos. Post-release From Prison ± MMT (N=141)

C = Counseling Only (N=70)
C+M = Counseling & Methadone Started in Prison (N=71)


Gastfriend, MD. “Medication-Assisted Treatments (MAT) for Opioid Use Disorder”, 4th Annual Addiction Medicine Symposium, Delaware, August, 2016
Relapse to intravenous drug use after methadone maintenance treatment for 105 male patients who left treatment.

Buprenorphine

Synthetic opioid with unique properties that make it an effective and safe

- **Partial opioid agonist, “Ceiling Effect”**
  - Limited respiratory depression

- **Slow dissociation from receptor**
  - Long duration of action
  - Milder withdrawal

- **Sublingual dosing**
Prescription Opiate Abuse Treatment Study (POATS)

- N = 653 Rx drug dependent patients
- **Phase 1** – Short term 2 week bup/naloxone tx
  - only 6.6% (43 of 653) successful
- **Phase 2** – Extended 12 week bup/naloxone tx
  - 49.2% (177 of 360) successful
- If tapered off bup – only 8.6% successful by week 24
- Counseling and chronic pain had no effect on outcomes

http://ctndisseminationlibrary.org/display/693.htm
Agonists: Treatment Retention

Mean retention on BUP:
- Yser, Addiction 2014: 66 days
- Baser, AJMC, 2011: 69 days
- Fishman, CPDD 2011: 9.6 wks (adol/young adults)

92% relapse within 8 wks of taper (Weiss et al., 2011)

Gastfriend, MD. "Medication-Assisted Treatments (MAT) for Opioid Use Disorder", 4th Annual Addiction Medicine Symposium, Delaware, August, 2016
**Probuphine**

- 6 mo. BUP implant; FDA approved May 2016
- Subdermal surgical insertion & removal at 6-months
- Adverse events: implant-site reactions, BUP reactions
- Braeburn’s REMS program required, to reduce implant migration, expulsion & nerve damage

**6-mo BUP Implant: Retention**

![Graph showing the number of patients over weeks for Buprenorphine and Placebo.](image)

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Modified from Ling, W. et al. JAMA 2010
Gastfriend, MD. “Medication-Assisted Treatments (MAT) for Opioid Use Disorder”, 4th Annual Addiction Medicine Symposium, Delaware, August, 2016
Injectable Naltrexone

- 380mg IM injection monthly
- Double-blind, placebo-controlled, randomized, 24-week trial of 250 Russian patients with opioid dependence disorder
  - **Confirmed abstinence** was 90.0% vs 35.0% in the placebo group (p=0.0002).
  - **Opioid-free days** 99.2% vs 60.4% (p=0.0004)
  - **Decreased craving** (p<0.0001).
  - **Better retention** was over 168 days vs 96 days (p=0.0042)

*THE LANCET*

Who Is going to Address This??

- States have been the safety net provider but
  - Woefully under financed
  - Fragmented, silo’d = poor care

- Patient Protection and Affordability Care Act and Mental Health Parity Act and Addiction Equity Act of 2010
  - substance abusers now insured, need care
  - Health systems have an emerging imperative:
    - must manage the negative impact of substance abusing populations.
Hospitals Aggregate the Addicted

• Doors are always open
• Medical consequences of abuse are common
• Substance use disorders are common and severe

BUT
• Poor adherence to care
• Poor clinical outcomes
• Over-utilization
• Historically a revolving door

Opportunity for improvement

* Saitz, JGIM, 2006; Bertholet, JGIM, 2010
• Wilmington/Christiana Hospitals - 1,100 beds
• 173,857 ED visits (22nd in the nation)
• 53,621 admissions (22nd in the nation)
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

Opioid Withdrawal

Signs and Symptoms

8 - 12 hr
Lacrimation
Yawning
Dilated Pupils
Rhinorrhea
Sweating

12 - 14
Restless Sleep

18 - 20
Dilated Pupils
Restlessness
Anorexia
Irritability
Gooseflesh
Anxiety
Tremors

48 - 72
Insomnia
Nausea & Vomiting
Sneezing
Diarrhea
Lacrimation
Abdominal Cramping
Muscle Spasms
Increased Heart Rate
Body Aches
Increased BP
Low Back Pain
Chills & Hyperthermia

Poor Patient Satisfaction

Clinical Pathway Integration Analysis
Exceptional Experience
Opioid Withdrawal

Caring Behaviors
- Assistance toileting
- Call bell help
- Courtesy of Doctors
- Courtesy of Nurses
- Describe med side effects
- Doctor listen
- Doctors explain
- Nurse Explain
- Nurse listen
- Staff do everything to help with pain
- Tell what new med was for

Clinical Excellence
- Pain Controlled
- Talk about help at home
- Told symptoms to watch for

Global
- Rate Hospital 0-10
- Recommend Hospital

Operational Efficiency
- Room quiet at night
- Room/bathroom cleanliness

% difference in question score: Opioid Withdrawal patient vs Acute Medicine Service Line patient
Costly

- Inordinate spending without addressing the root cause
- Inpatient stays are the primary cost drivers
- Expensive revolving door
  - higher use of ER (2.3x), inpatient care (6.7x)**
  - Increased AMA, readmissions***
- Opiate Abusers cost additional $14-20,000/patient/yr compared to non-users****

* Saitz, JGIM, 2006; Bertholet, JGIM, 2010
** Stein, J Sub Abuse, 1993
*** Hwang, 2003; Jankowski, 1977; Chan, 2004; Walley 2012
****White, 2005
Christiana Care’s Response

• Emergency Room and Inpatient Service
  – Screening and Identification
  – Treatment of Withdrawal
  – Inpatient initiation of drug abuse treatment
  – Addiction Medicine Consultation Service
  – Referral to community-based care
  – Special populations such as pregnant women

• Project Engage

• Outpatient
  – Integration into Primary Care
  – Referral to community-based care
  – Medication-assisted treatment
Opioid Withdrawal Pathway

- Launched in May, 2016
- Screening of all medical admissions
- Approx 5% of medical admissions screens positive
- 2.2% of medical admissions are in at least mild opioid withdrawal from heroin
- Expect to identify at least 500 heroin use disordered patients
Opioid Withdrawal Treatment

- Avoidance of withdrawal is highly motivating
- Hospitalists can initiate automated treatment protocol
- Project Engage peer counselors meet patients at the bedside and assist the medical teams
- Continuation to medication-assisted treatment and referral to community-based drug treatment
- Connections early data: n = 29
  - 48% successfully transferred to care
  - 75% retained at least 1 month
Project Engage

- Founded in 2008
- Imbedded peer counselors from local drug treatment program
- Bedside peer-to-peer intervention using Motivational Interviewing
- Partnering with a Social Worker
• Engagement begins in the hospital
• Peer counselor provides ongoing care:
  • Peer support into the community
  • Adaptive complex case-manager
  • Relapse Prevention
• Early results promising
Project Engage
Mother & Child

- Assisting opioid-dependent pregnant patients retain in drug treatment
- Follow through labor to 3 months postpartum
- Peer-counselor driven
- Close working relationship with Nursing and SW
- Improve health metrics of mother and infant
Case: Jason

21 yo landscaper admitted with endocarditis

• Heroin IVDA since 16 yo Junior at high school using several bundles a day, every 4 hours
• Began with oxycodone, marijuana, chewing tobacco
• No previous drug treatment episodes
• Brother in recovery at a half-way house, parents supportive. Fiancé was 2 months pregnant
• Withdrawal identified and treatment initiated with buprenorphine/naloxone which was maintained at 8mg dose.
Case: Jason

- Completed 6 weeks of IV antibiotics, Project Engage facilitated successful transfer to our Medication Assisted Treatment service
- Initially did well but relapsed after 6 months
- Readmitted with recurrence of endocarditis destroying his tricuspid valve.
- Stabilized medically, transitioned onto Vivitrol and counseling, and present for birth of his son
- Discharged, remains engaged into care
1. Addiction as a dangerous debilitating brain disease
2. Disturbing trends with heroin use and death
3. Prevention, use of intranasal Naloxone
4. Treatment: methadone, buprenorphine, injectable naltrexone, counseling, support
5. Christiana Care’s Response
   • Opiate Withdrawal Pathway
   • Project Engage
   • Outpatient care
Questions?