ACEs, Opioids & Community Response: Connecting the Dots

University of Maryland School of Medicine
Department of Psychiatry
Taghi Modaressi Center for Infant Study

Kay Connors, LCSW-C, Director

Awakenings Recovery Center

Robert Zellner, CPRS, RPS, Director of Client Services

March 4, 2020
Acknowledgments

- **David Pruitt, MD, Sarah Edwards, DO, Gloria Reeves, MD**, Division of Child and Adolescent Psychiatry, University of Maryland School of Medicine
- Family Informed Trauma Treatment Team: **Laurel Kiser, Kathryn Collins, Fred Strieder, Sarah Gardner**
- **Leaders in the Field**: National Child Traumatic Stress Network
- **Maryland Essentials For Childhood**: Claudia Remington
- **Maryland Department of Health**: Center for Harm Reduction Services Team, Erin Haas (Center Chief) and Marie Stratton, Coordinator Regrounding Our Response
- **Dr. Michael Brumage**, Medical Dir., Cabin Creek Health System and Program Dir., Public Health/General Preventive Medicine Residency, WVU School of Public Health
Presenter’s Disclosures

Kay Connors
• Maryland Department of Health—Center of Excellence for Infant and Early Childhood Mental Health
• ACE Interface Master Trainer

Robert Zellner
• Director of Client Services at Awakenings Recovery Center
• Regrounding Our Response Trainer: ACEs, Stages of Change, Medication-Assisted Treatment as Overdose Prevention
• Former Peer Support Specialist Supervisor for the Syringe Services Program (SSP) and Law Enforcement Assisted Diversion (LEAD) program at the Washington County Health Department.
Objectives for Today’s Talk

• The Adverse Childhood Experiences Study: Background and Importance
• ACEs, Behavioral Health & Overdose
• ACEs, Addiction, Prevention and Risk
• ACEs & Regrounding Our Response
• What To Do: Trauma-Informed Care and Whole Family Services
Stress and HPA

- Alert: Attend to danger
- Stress Response: Increase cortisol (all systems ready)
- Distress: Cortisol + Adrenaline
- Regulator: Amygdala
  1. solve problem
  2. escape problem
  3. cope with problem
  4. SURVIVE at all costs
Nature gets Nurtured

• The genes are the hardware and epigenetics is the software that operates “above the genome” and tells the hardware what to do, how and when to do it.

• The genome can be marked by “nurture” or experience.

• This process influences behavior and the consequent development of the maturing offspring.

• [http://www.epigenome.eu/](http://www.epigenome.eu/)
The Past Can Define the Present
Moshe Szyf, 2005 (McGill University, Quebec)

• The genes we inherit from our parents remain with us throughout our life

• Epigenetic changes can be environmentally triggered and change the course of our development in both positive and negative directions and back again.

• They can be passed on to the next generation.
Genetic Imprint of Trauma

• Children who have experienced violence might really be older than their years.
• Twin study found to show wear and tear normally associated with aging.
• Telomeres are “master integrators,” connecting stress to biological age and associated diseases.

“Exposure to Violence During Childhood Is Associated With Telomere Erosion From 5 to 10 Years of Age: A Longitudinal Study,” Idan Shalev, Terrie Moffitt et al. *Molecular Psychiatry*, April 24th. doi:10.1038/mp.2012.32 available at [https://www.nature.com/articles/mp201232](https://www.nature.com/articles/mp201232)
Early Adversity Increases Physical, Mental, Behavioral Problems, Scientists Report

Dr. Robert Anda & Dr. Vincent Felitti
Investigators

Centers for Disease Control & Prevention, Kaiser Permanente Study

Over 17,000 study participants

The ACE Study confirms, with scientific evidence, that adversity early in life increases physical, mental and behavioral problems later in life.
# Adverse Childhood Experiences

**ARE COMMON**

<table>
<thead>
<tr>
<th>Household Dysfunction</th>
<th>Neglect</th>
<th>Abuse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance Abuse 27%</td>
<td>Emotional 15%</td>
<td>Emotional 11%</td>
</tr>
<tr>
<td>Parental Separation / Divorce 23%</td>
<td>Physical 10%</td>
<td>Physical 28%</td>
</tr>
<tr>
<td>Mental Illness 17%</td>
<td></td>
<td>Sexual 21%</td>
</tr>
<tr>
<td>Battered Mothers 13%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Criminal Behavior 6%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL 10 ACEs**
ACE Score = Number of ACE Categories

ACE Scores Reliably Predict Challenges During the Life Course

- 0 ACEs: 33%
- 1 ACE: 26%
- 2 ACEs: 16%
- 3 ACEs: 10%
- 4+ ACEs: 16%
ACEs are Highly Interrelated:

Where One ACE Occurs, There are Usually Others

87% occur together

ONE type of ACE

2nd type of ACE
ACE Score and Health Problems

% with Health Problems

Dose-Response Relationship

0 ACE 1 ACE 2 ACEs 3 ACEs 4 ACEs <5 ACEs
Neurobiology and Epidemiology Converge

Health and Social Problems
- panic reactions
- depression
- anxiety
- hallucinations
- sleep disturbances
- severe obesity
- pain
- smoking
- alcoholism
- illicit drug use
- IV drug use
- early intercourse
- promiscuity
- sexual dissatisfaction
- amnesia (childhood)
- high stress
- problems with anger
- perpetrating
- domestic violence

Mean Number of Co-Occurring Outcomes

ACE SCORE
ACEs & Behavioral Health
Difficulty Concentrating
ACEs & Alcoholism & Marrying an Alcoholic

% Alcohol Related Problems

Alcoholic  Married to an Alcoholic

ACE Score
- 0
- 1
- 2
- 3
- 4 or more

© 2015
ACEs & Depression

% Depressed

ACE SCORE

0 1 2 3 4 or +

Women
Men

© 2015
<table>
<thead>
<tr>
<th>EXAMPLES OF ACE-ATTRIBUTABLE PROBLEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcoholism &amp; Alcohol Abuse</td>
</tr>
<tr>
<td>Chronic Obstructive Pulmonary Disease</td>
</tr>
<tr>
<td>Coronary Heart Disease</td>
</tr>
<tr>
<td>Depression</td>
</tr>
<tr>
<td>Drug Abuse &amp; Illicit Drug Use</td>
</tr>
<tr>
<td>Fetal Death</td>
</tr>
<tr>
<td>Intimate Partner Violence</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
ACES can have lasting effects on:

- Health (obesity, diabetes, depression, suicide attempts, STDs, heart disease, cancer, stroke, COPD, broken bones)
- Behaviors (smoking, alcoholism, drug use)
- Life Potential (graduation rates, academic achievement, lost time from work)

ACEs have been found to have a graded dose-response relationship with 40+ outcomes to date.

Risk for Negative Health and Well-being Outcomes:

- *This pattern holds for the 40+ outcomes, but the exact risk values vary depending on the outcome.*

http://www.cdc.gov/violenceprevention/acestudy/about_ace.html
ACEs are Common, Interrelated, Powerful

High ACE Scores in Population

Increased Risk of Multiple Health and Social Problems

Intergenerational Transmission of ACEs
Adverse Childhood Experiences 2019

214,157 respondents form 23 states Behavioral Risk Factor Surveillance System (BRFSS)

61.55% had at least 1 and 24.64% reported 3 or more ACEs.

Emotional abuse was the most prevalent ACE (34.42%), followed by parental separation or divorce (27.63%) and household substance abuse (27.56%).

Significantly higher ACE exposures were reported by participants who identified as Black, Hispanic, LGBTQ, Less than a high school, Income of less than $15,000 per year, Unemployed.

Let’s Talk About Drugs
“Self regulation depends on having a friendly relationship with your body. Without it you have to rely on external regulation – from medication, drugs like alcohol, constant reassurance, or compulsive compliance with the wishes of others.”

Revisiting the Three Waves: National and Statewide Context of Opioid Mortality
Unpacking the Three Waves

This rise in opioid overdose deaths can be outlined in three distinct waves:

1. The first wave began with increased prescribing of opioids in the 1990s, with overdose deaths involving prescription opioids (natural and semi-synthetic opioids and methadone) increasing since at least 1999.

2. The second wave began in 2010, with rapid increases in overdose deaths involving heroin.

3. The third wave began in 2013, with significant increases in overdose deaths involving synthetic opioids – particularly those involving illicitly-manufactured fentanyl (IMF). The IMF market continues to change, and IMF can be found in combination with heroin, counterfeit pills, and cocaine.

https://www.cdc.gov/drugoverdose/epidemic/index.html
Oxycontin Reformulation on Q3 2010
Prescribing & Rx Opioid OD in Maryland: 1999-2017

The graph shows the trends in Rx Opioid Overdose Death Rate and Rx Opioid Prescribing Rate from 1999 to 2017. The overdose death rate has generally increased over time, with a significant rise starting around 2014. The prescribing rate also shows an increase, peaking around 2015.
94% of respondents in a 2014 survey of people in treatment for opioid addiction said they chose to use heroin because prescription opioids were “far more expensive and harder to obtain.”*

Overdose by Substance in Maryland: 1999-2017
ACEs, Substance Use, Misuse and SUD
Surgeon General Dr. Jerome Adams

“Preventing substance misuse requires that we all change our perspective. We must start to see addiction not just as a disease, but as a symptom. Often, addiction is a product of suffering. To really have an impact, you must go to the source of that suffering. For all too many people, that source is trauma... In particular, childhood trauma has repeatedly been shown to increase the risk of not only addiction, but other health issues.”

“[Addiction] is a normal response to the adversity experienced in childhood, just like bleeding is a normal response to being stabbed. He says: the solution to changing the illegal or unhealthy… behavior of opioid addiction is to address a person’s adverse childhood experiences (ACEs) individually and in group therapy; treat people with respect; provide [MAT] and help them find a… comfort-seeking behavior that won’t kill them or put them in jail.”

Pg. 51, Maryland State Council on Childhood Abuse and Neglect Annual Report: 2016
ACEs & Risk of Illicit Drug Use: 2003 Study

• For every increase in someone’s ACE score they became two to four times more likely to engage in early initiation of use.

• The ACE score had a strong graded relationship to initiation of drug use in all 3 age categories as well as to drug use problems, drug addiction, and parenteral drug use.

• Compared w/ people with 0 ACEs, people with ≥5 ACEs were 7 to 10 times more likely to report illicit drug use problems, addiction to illicit drugs, and parenteral drug use.

Source: Childhood Abuse, Neglect, and Household Dysfunction and the Risk of Illicit Drug Use: The ACEs Study: https://pediatrics.aappublications.org/content/111/3/564?download=true
ACE Scores Linked to Physical & Mental Health Problems

Compared with people with no ACEs, those with 4 or more ACEs were:

- 2x more likely to smoke
- 2x more likely to have cancer or heart disease
- 6x more likely to be depressed
- 6x more likely to have had sex before age 15
- 7x more likely to develop an alcohol use disorder
- 10x more likely to inject drugs
- 12x more likely to have attempted suicide
- People with 6 or more ACEs were 46 times more likely to have injected drugs than those with no history of adverse childhood experiences

http://www.cdc.gov/ace/index.htm
The Risk of Early Initiation Holds Across Eras

Four successive generations (birth cohorts going back to 1900) had the same persistent graded relationship between the ACE score and initiation of drug use

suggests effects of ACEs transcend other changes over time:

• increased availability of drugs
• social attitudes toward drugs
• massive expenditures and public information campaigns to prevent drug use

Source: Childhood Abuse, Neglect, and Household Dysfunction and the Risk of Illicit Drug Use: The ACEs Study:
https://pediatrics.aappublications.org/content/111/3/564?download=true
People Who Inject Drugs & ACEs vs. The Original Cohort Study
<table>
<thead>
<tr>
<th>ACE Category*</th>
<th>Women (N = 9,367)</th>
<th>Men (N = 7,970)</th>
<th>Total (N = 17,337)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abuse</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Abuse</td>
<td>13.1</td>
<td>7.6</td>
<td>10.6</td>
</tr>
<tr>
<td>Physical Abuse</td>
<td>27.0</td>
<td>29.9</td>
<td>28.3</td>
</tr>
<tr>
<td>Sexual Abuse</td>
<td>24.7</td>
<td>16.0</td>
<td>20.7</td>
</tr>
<tr>
<td>Neglect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Neglect</td>
<td>16.7</td>
<td>12.4</td>
<td>14.8</td>
</tr>
<tr>
<td>Physical Neglect</td>
<td>9.2</td>
<td>10.7</td>
<td>9.9</td>
</tr>
<tr>
<td>Household Dysfunction</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mother Treated Violently</td>
<td>13.7</td>
<td>11.5</td>
<td>12.7</td>
</tr>
<tr>
<td>Household Substance Abuse</td>
<td>29.5</td>
<td>23.8</td>
<td>26.9</td>
</tr>
<tr>
<td>Household Mental Illness</td>
<td>23.3</td>
<td>14.8</td>
<td>19.4</td>
</tr>
<tr>
<td>Parental Separation or Divorce</td>
<td>24.5</td>
<td>21.8</td>
<td>23.3</td>
</tr>
<tr>
<td>Incarcerated Household Member</td>
<td>5.2</td>
<td>4.1</td>
<td>4.7</td>
</tr>
</tbody>
</table>

**Harm Reduction Clinic**

N = 199

ACEs in Harm Reduction

Charleston, WV Harm Reduction Clinic

Comparison between the original ACE study and clinic participant survey results

Credit: Michael Brumage, Former Health Officer, Kenawha County, currently WVU/Cabin Creek

Number of ACEs: Harm Reduction Clinic Compared to ACE Study

<table>
<thead>
<tr>
<th>Number of Adverse Childhood Experiences (ACE Score)</th>
<th>Women</th>
<th>Men</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>34.5</td>
<td>38.0</td>
<td>36.1</td>
</tr>
<tr>
<td>1</td>
<td>24.5</td>
<td>27.9</td>
<td>26.0</td>
</tr>
<tr>
<td>2</td>
<td>15.5</td>
<td>16.4</td>
<td>15.9</td>
</tr>
<tr>
<td>3</td>
<td>10.3</td>
<td>8.6</td>
<td>9.5</td>
</tr>
<tr>
<td>4 or more</td>
<td>15.2</td>
<td>9.2</td>
<td>12.5</td>
</tr>
</tbody>
</table>

- 66% of patients reported at least one ACE event
- 39% patients had a score of 4 or more
- ACEs are more common and severe among patients in the Harm Reduction Clinic than in the referent population

Credit: Michael Brumage, Former Health Officer, Kenawha County, currently WVU/Cabin Creek
Adverse Childhood Experiences & Adverse Community Environments
The Pair of ACEs

Adverse Childhood Experiences

- Maternal Depression
- Physical & Emotional Neglect
- Emotional & Sexual Abuse
- Divorce
- Substance Abuse
- Mental Illness
- Domestic Violence
- Incarceration
- Homelessness

Adverse Community Environments

- Poverty
- Discrimination
- Violence
- Community Disruption
- Lack of Opportunity, Economic Mobility & Social Capital
- Poor Housing Quality & Affordability

Ellis W., Dietz W. BCR Framework Academic Peds (2017)
Social Determinants of Health (SDOH)

Social Determinants of Health are the conditions in the places where people live, learn, work, and play. These conditions affect a wide range of health risks and outcomes, including a child’s risk for and exposure to traumatic experiences. There are pronounced differences in health in communities with poor SDOH such as unstable housing, low income, unsafe neighborhoods, or substandard education. Trauma-informed integrated healthcare strives towards creating health equity by promoting social and physical environments that support good health and well-being for all.

Adapted from the Centers for Disease Control and Prevention (https://www.cdc.gov/socialdeterminants/)
REGROUNDING OUR RESPONSE
Clay Stamp, the former Director of the Opioid Operational Command Center (OOCC), helpfully and repeatedly pointed out that this crisis was unlike any other he’d worked on in his decades of emergency management.

The reason was because of stigma.

Regrounding Our Response aims to provide tools to support communities in expanding education on fundamental areas of public health that are necessary to help reduce stigma.

As Clay pointed out, until we can do something about the stigma, we will be limited in our readiness to embrace the policies that are being shown to work – saving lives, saving money, and helping turn the tide in this crisis.
Stages of Change

- **Pre-contemplation**: no intention on changing behaviour
- **Contemplation**: aware a problem exists but with no commitment to action
- **Preparation**: intent on taking action to address the problem
- **Action**: active modification of behaviour
- **Maintenance**: sustained change; new behaviour replaces old
- **Relapse**: fall back into old patterns of behaviour

**UPWARD SPIRAL**
Learn from each relapse

Prochaska & DiClemente, 1983
Stages of Change – Transtheoretical Model

5 basic stages of behavior change:

1. Precontemplation
2. Contemplation
3. Preparation
4. Action
5. Maintenance

Relapse and recycling occurs throughout.
Regrounding Our Response: Tools for Reducing Stigma

What they looked for:
(a) a widely accepted public health model or concept based on evidence
(b) established curriculum that speaks to our persistent myths
(c) training infrastructure that can make this happen quickly

Community Education Strategy:
1. Identify partners and gather curriculum, adapting where necessary
2. Train trainers on curriculum across regions and sectors*
3. Work with local OIT to most helpfully provide this content locally

*This is explicitly modeled after the model being used by the ACE Interface Initiative through the Family Tree and SCANN
Five Parts to Build Five Foundations

1. **Stages of Change** → How does behavior change?
2. **Adverse Childhood Experiences** → Why do people use drugs? What is the connection between trauma and substance use?
3. **Social Determinants of Health** → Why are some communities affected differently than other communities?
4. **MAT as Overdose Prevention** → What is our best frontline evidence-based tool to prevent overdose death?
5. **Drug User Health Framework** → What does it really mean to meet someone where they are at? How do we provide care + services for people not ready for treatment?
ACEs: What Can Be Done
Attachment & Belonging

RELATIONSHIPS
with caring and competent
people are vital
contributors to
resilience & recovery
Shaking the Shame and Lifting up Hope

Change the conversation from *what is wrong* with you or your community? To *what happened* to you or community?

Sets the stage for a **solutions** rather than *shame and blame*.

ACEs are common so universal precautions are warranted and its impact is potentially substantial to children’s development and families’ health and well-being

Help visualize future: “If I were to meet you in five years what would you like to tell me about how you got through these tough times?”
SAMHSA’s concept of a trauma-informed approach

**Realizes** the widespread impact of trauma and understands potential paths for recovery;

**Recognizes** the signs and symptoms of trauma in clients, families, staff, and others involved with the system;

**Responds** by fully integrating knowledge about trauma into policies, procedures, and practices; and

**Seeks to actively resist re-traumatization.**

**Resilience** practices are integrated into all levels of interventions and services.

The Three E’s of Trauma According to SAMHSA

Individual trauma results from an event, series of events, or set of circumstances that is experienced by an individual as physically or emotionally harmful or life threatening and that has lasting adverse effects on the individual’s functioning and mental, physical, social, emotional, or spiritual well-being.
Four Resilience Factors that Make a Difference
They are even more powerful when we Layer Up…

1. Feeling social/emotional support and hope
2. Having 2 or More People Who Help (two or more people who give concrete help when needed)
3. Community reciprocity in watching out for children, intervening when they are in trouble, doing favors for one another
4. Social Bridging – People reach outside their social circle to get help for their family and friends
CHANGE is up to US

the way we relate with one another in relationships, in families, and in communities.
The purpose of RCORP is to support treatment for and prevention of substance use disorder, including opioid use disorder, in rural counties at the highest risk for substance use disorder.

Kay Connors Kconnors@som.umaryland.edu
Rob Zellner rzellner@awakeingsrecoverymd.com

This product was supported by the Federal Office of Rural Health Policy (FORHP), Health Resources and Services Administration (HRSA), U.S. Department of Health and Human Services (HHS) under grant # U69RH32364. The information, conclusions and opinions expressed in this product are those of the authors and no endorsement by FORHP, HRSA, or HHS is intended or should be inferred.