



***Never Mix, Never Worry:
What Clinicians Need to Know about
HIV and Psychotropics***

Trainer Guide

Never Mix, Never Worry: What Clinicians Need to Know about HIV and Psychotropics

Table of Contents

Background Information	4
What Does the Training Package Contain?.....	4
What Does This Trainer’s Guide Contain?	4
How is This Trainer’s Guide Organized?	4
General Information about Conducting the Training.....	5
Materials Needed to Conduct the Training	5
Overall Trainer Notes	5
Icon Key	5
Slide-By-Slide Trainer Notes	6
Title Slide and Training Collaborators (Slides 1-2)	7-8
Test Your Knowledge Questions, Introductions, and Educational Objectives (Slides 3-11)	9-14
The Link of Psychotropics in Integrated Treatment (Slides 12-23)	14-29
The Challenge of Illicit Use (Slides 24-30)	29-41
Psychotropic Factors and HIV (Slides 31-36).....	41-49
Neurotransmitters (Slides 37-42).....	49-52
A Review of Medications by Disorder and Black Box Warnings (Slide 43-44)	53-54
Diagnostic Considerations for Depression (Slides 45-60)	54-67
Diagnostic Considerations for Anxiety (Slides 61-70)	68-74
Diagnostic Considerations for PTSD (Slides 71-78)	75-81
Diagnostic Considerations for Psychosis (Slides 79-86)	81-86
Diagnostic Considerations for ADHD (Slides 87-91)	87-90

Diagnostic Considerations for Bipolar Disorder (Slides 92-97)	90-96
Recognizing HIV and Psychiatric Illness (Slides 98-115)	97-112
Drug-Drug Interactions (Slides 116-132).....	113-124
Treatment Approaches (Slides 133-154).....	125-149
What Did You Learn Questions (Slides 155-160)	149-152
Acknowledgements	153

Never Mix, Never Worry: What Clinicians Need to Know about HIV Psychotropics

Background Information

The purpose of this introductory training is to provide HIV clinicians (including, but not limited to physicians, dentists, nurses, and other allied medical staff, therapists and social workers, and counselors, specialists, and case managers) with an overview of psychotropic medications and their interaction with HIV, antiretroviral medications, and illicit drugs. The duration of the training is approximately 180 minutes (3 hours). Pre- and post-test questions have been inserted at the beginning and end of the presentation to assess a change in the audience's level of knowledge after the information has been presented. An answer key is provided in the Trainer's notes for slides 4-8 and slides 155-159.

Audience Response System can be utilized, if available, when facilitating the pre- and post-test questions.

What Does the Training Package Contain?

- PowerPoint Training Slides (with notes)
- Trainer's Guide with detailed instructions for how to convey the information and conduct the interactive exercises
- Two-page fact sheet entitled, "Tips for HIV Clinicians Working with Patients Taking Psychotropic Medications"

What Does This Trainer's Guide Contain?

- Slide-by-slide notes designed to help the trainer effectively convey the content of the slides themselves
- Supplemental information for select content to enhance the quality of instruction
- Suggestions for facilitating the "Test Your Knowledge" questions and group discussions/case studies

How is This Trainer's Guide Organized?

For this guide, text that is shown in bold italics is a "***Note to the Trainer.***" Text that is shown in normal font relates to the "Trainer's Script" for the slide.

It is important to note that several slides throughout the PowerPoint presentation contain animation, some of which is complicated to navigate. Animations are used to call attention to particular aspects of the information or to present the information in a stepwise fashion to facilitate both the presentation of information and participant understanding. Getting acquainted with the slides, and practicing delivering the content of the presentation are essential steps for ensuring a successful, live training experience.

General Information about Conducting the Training

The training is designed to be conducted in medium-sized groups (30-50 people). It is possible to use these materials with larger groups, but the trainer may have to adapt the small group exercises/case studies and discussions to ensure that there is adequate time to cover all of the content.







Materials Needed to Conduct the Training

- Computer with PowerPoint software installed (2010 or higher version) and LCD projector to show the PowerPoint training slides.
- When making photocopies of the PowerPoint presentation to provide as a handout to training participants, it is recommended that you print the slides three slides per page with lines for notes. Select “pure black and white” as the color option. This will ensure that all text, graphs, tables, and images print clearly.
- Flip chart paper and easel/white board, and markers/pens to write down relevant information, including key case study discussion points.

Overall Trainer Notes

It is critical that, prior to conducting the actual training, the trainer practice using this guide while showing the slide presentation in Slideshow Mode in order to be prepared to use the slides in the most effective manner.

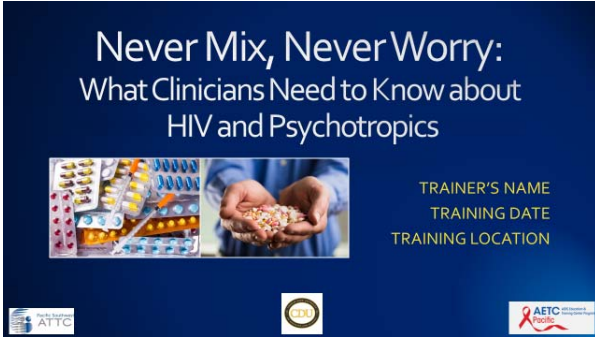
Icon Key

	Note to Trainer		Activity
	References		Audience Response System (ARS)-Compatible Slide
	Image Credit		Video Source

Never Mix, Never Worry: What Clinicians Need to Know about HIV and Psychotropics

Slide-By-Slide Trainer Notes

The notes below contain information that can be presented with each slide. This information is designed as a guidepost and can be adapted to meet the needs of the local training situation. Information can be added or deleted at the discretion of the trainer(s).



Slide 1: [Title Slide]

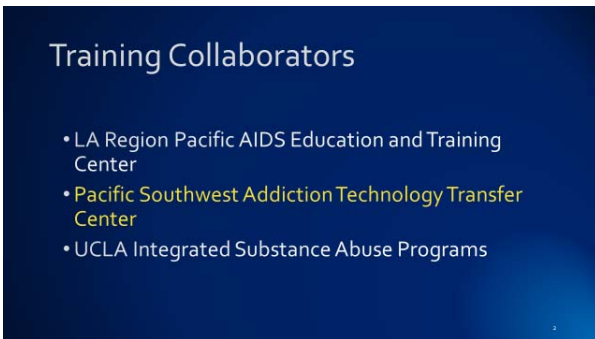


Before you begin, welcome participants and take care of housekeeping announcements, such as location of restrooms, turning off cell phones, participating actively, etc.

The purpose of this introductory training is to provide HIV treatment providers (including, but not limited to physicians, dentists, nurses, and other allied medical staff, therapists and social workers, and counselors, specialists, and case managers) with an overview of psychotropic medications and their interaction with HIV, antiretroviral medications, and illicit drugs. The duration of the training is approximately 180 minutes (3 hours).

Pre- and post-test “Test Your Knowledge” questions have been inserted at the beginning and end of the presentation to assess a change in the audience’s level knowledge after the key content has been presented. An answer key is provided in the Trainer’s notes for slides 4-8 and slides 155-159.

(Notes for Slide 1, continued)



Slide 1: [Title Slide]



Audience Response System can be utilized, if available, when facilitating the pre- and post-test question sessions.

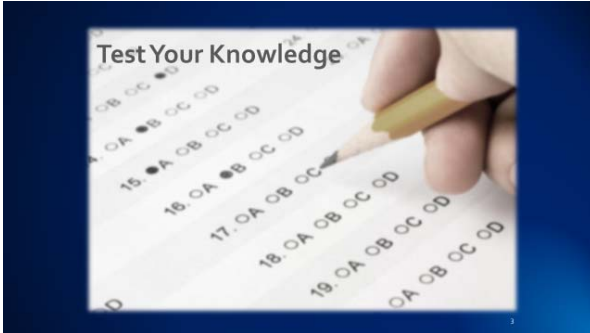


IMAGE CREDITS (Left to Right):

Fotolia, purchased images, 2017.

Slide 2: Training Collaborators

This PowerPoint presentation, Trainer Guide, and companion fact sheet were developed by Andrew Kurtz, MA, LMFT, James Peck, Psy.D., Beth Rutkowski, MPH (Associate Director of Training of UCLA ISAP) and Thomas E. Freese, PhD (Director of Training of UCLA ISAP and Director of the Pacific Southwest ATTC) through supplemental funding provided by the Pacific AIDS Education and Training Center, based at Charles R. Drew University of Medicine and Science. We wish to acknowledge Phil Meyer, LCSW, Kevin-Paul Johnson, Maya Gil Cantu, MPH, and Thomas Donohoe, MBA, from the LA Region PAETC.



Slide 3: Test Your Knowledge



*The purpose of the following five (5) questions is to test the pre-training level of HIV and psychotropic medication knowledge among the training participants. The questions are formatted as either multiple choice or true/false questions. Read each question and the possible responses aloud, and give training participants time to jot down their response before moving on to the next question. **Do not** reveal the answers to the questions until the end of the training session (when you re-administer the questions that appear on slides 155-159).*

Pre-Test Question

1. This is the second most commonly abused category of drugs in the United States:
 - A. Marijuana
 - B. Heroin
 - C. Benzodiazepines/anxiolytics
 - D. Prescription pain relievers

Slide 4: Pre-Test Question #1



Read the question and answer choices, and review audience responses out loud.



**Audience Response System (ARS)-compatible slide

Pre-Test Question

2. The United States ranks ____ in the world for highest rates of HIV in severely mentally ill (SMI) populations.

- A. first
- B. second
- C. third
- D. last

5

Slide 5: Pre-Test Question #2



Read the question and answer choices, and review audience responses out loud.



**Audience Response System (ARS)-compatible slide

Pre-Test Question

3. Mental disorders are one of the top five reasons individuals visit the doctor each year.

- A. True
- B. False

6

Slide 6: Pre-Test Question #3



Read the question and answer choices, and review audience responses out loud.



**Audience Response System (ARS)-compatible slide

Pre-Test Question

4. Development of mental, neurocognitive, or substance use issues among people living with HIV (PLWH) is associated with:

- A. Increased integrative services
- B. Lower antiretroviral (ART) adherence
- C. Lower quality of life
- D. Both B and C
- E. All of the above

7

Slide 7: Pre-Test Question #4



Read the question and answer choices, and review audience responses out loud.



**Audience Response System (ARS)-compatible slide

Pre-Test Question

5. Rates of depression among PLWH are easy to predict because of grief and loss related to receiving an HIV diagnosis.

- A. True
- B. False

8

Slide 8: Pre-Test Question #5



Read the question and answer choices, and review audience responses out loud.



**Audience Response System (ARS)-compatible slide

Introductions

Briefly tell us:

- **What is your name?**
- **Where do you work and what you do there?**
- **Who is your favorite musician or performer?**
- **What is one reason you decided to attend this training session?**



Slide 9: Introductions



In an effort to break the ice and encourage group interaction, take a few minutes to ask training participants to briefly share the answers to these four questions. You can ask for several volunteers to share their responses, if the size of your audience prevents all participants from sharing.

If the group is too large for formal introductions, the trainer can quickly ask participants the following two questions to gauge their work setting and professional training:

1. How many [case managers, LMFTs or LCSWs, counselors, administrators, physicians, PAs, nurse practitioners, nurses, medical assistants, dentists, etc.] are in the room? Did I miss anyone? {elicit responses}

2. How many people work in a [substance use disorder, mental health, primary care, infectious disease] setting? Did I miss any settings? {elicit responses}

Educational Objectives

At the end of this training session, participants will be able to:

1. Describe the epidemiology, neurobiology, and mechanism of action of psychotropic medication use.
2. Identify at least two (2) psychotropics and the corresponding mental health diagnosis they are used to treat.
3. Discuss at least three treatment interventions to avoid drug-drug interactions and/or enhance medication use as directed.
4. Describe two medication side effects that could be misdiagnosed as a symptom of HIV or a mental health disorder.

Slide 10: Educational Objectives



Briefly review each of the educational objectives with the audience.

What we'll cover

- Psychotropics as the link in integrated treatment: recognizing the intersection of substance use, mental health, and HIV
- Medications used to treat mental illness:
 - Depression
 - Anxiety
 - PTSD
 - Psychosis
 - ADHD
 - Bipolar
- Treatment Recommendations
 - Assessment and identification
 - Drug-drug interactions
 - Treatment approaches
- Final tips for providers

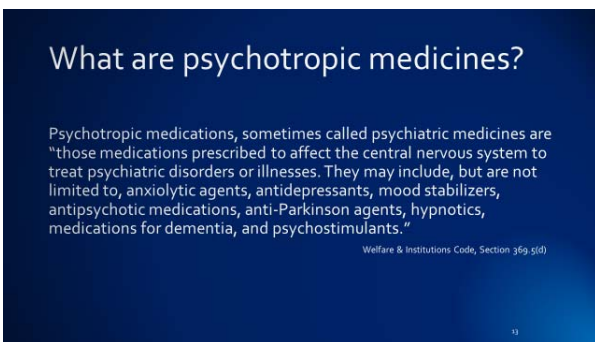


Slide 11: What We'll Cover



The purpose of this slide is to serve as a “road map” for the trainer to describe to participants the different sections of the training and the focus at each point. The training starts with an overview of the way substance use, mental health, and HIV play a role in the use and prescribing of psychotropic medications while providing some general prevalence statistics and epidemiology. From there, participants will learn about different medications used to treat specific mental illnesses and the training will conclude with a description of different treatment recommendations and considerations.

(Notes for Slide 11, continued)



Slide 11: What We'll Cover



IMAGE CREDIT:

Fotolia, purchased image, 2016

Slide 12: The Link of Psychotropics in Integrated Treatment



Introduce this section as establishing a foundational understanding of the way in which mental health, substance use, and physical health, including HIV, play a role in the prescribing and adherence to psychotropic medications.

Slide 13: What are psychotropic medicines?



Read the definition of psychotropic medications to the audience.

It is important to define psychotropic medications and have a common definition for the remainder of the training. This definition of "psychotropic medication" is defined per the California Welfare & Institutions Codes, Section

(Notes for Slide 13, continued)



Slide 13: What are psychotropic medicines?

369.5(d) and describes psychotropic medicines as any medications in the treatment of psychiatric disorders or illness that affect the central nervous system. Some general categories of medications are then listed.

Slide 14: What is the difference between drugs and medications?



Present the information in the two boxes, distinguishing between the term drugs (substances that make people feel good but can also make it difficult to manage mental health) and medications (useful and effective tools for reducing symptoms and preventing relapse). Ask the audience why this distinction is important.

Common Classes of Psychiatric Medications

- Antidepressants
- Antipsychotics
- Mood Stabilizers
- Benzodiazepines
- ADHD meds
(e.g., stimulants)



15

Slide 15: Common Classes of Psychiatric Medications



These are the major classes of psychotropic medications. Connect this information with the double-sided handout provided participants that provides a crosswalk from the brand name of a medication to the generic and vice versa. The reverse side provides a list of categories of medications, listing the generic name first and its corresponding brand name.

This allows participants to become familiar with both terms during the training and serves as a reference tool following training. Generic names are listed first and recommended for use throughout the training in order to avoid conflict of interests.



IMAGE CREDIT:

Fotolia, purchased image, 2017

Determining Range of Use

- Limited public information is available about the extent of psychiatric medication use in the United States
- Information tends to be cross-sectional
- Additional information on longitudinal impacts is needed

SOURCE: Moore & Mattison, 2016

15

Slide 16: Determining Range of Use



Review the information on the slide, highlighting that there is limited public information available about the extent of psychiatric medication use in the United States due to the fact that most information is cross-sectional rather than providing a longitudinal perspective of on-going medication use. This is one area in which an understanding of the impact of longer-term use would be beneficial.

Ask the audience: why do you think there is such limited information on prescription drug use?



REFERENCE:

Moore, T.J. & Mattison, D.R. (2016). Adult utilization of psychiatric drugs by sex, age, and race. *JAMA Internal Medicine*, 177(2), 274-275.

(based on 2013 Medical Expenditure Panel Survey)

Psychotropics: Range of Use

- Most medication use reported was **long term** (84%)
 - Use had continued for at least two years
 - 3 or more prescriptions had been filled that year
- **Little difference in long-term use** between antidepressants; anxiolytics, sedatives, hypnotics; and antipsychotics
- Long-term prescribing information for antidepressants is limited
- Most **users of zolpidem tartrate were long-term users** and tended to pair with other CNS depressants **despite warnings**

SOURCE: Moore & Mattison, 2016

17

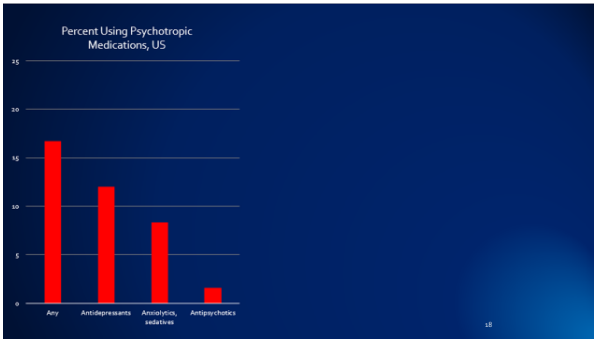
Slide 17: Psychotropics: Range of Use

While longitudinal data on the impact of the psychotropic medication use is limited, there is some information regarding how long individuals tend to use medications and the implications for health of on-going use of psychotropic medications. Most individuals use medication “long term” – meaning they have used a prescribed medication for at least two years or have had 3 or more prescriptions of that medication filled within a year.

While there was little difference in long-term use of major categories of medications, many users of zolpidem (brand name Ambien used to aid in sleep) report pairing the sedative with other CNS depressant substances such as alcohol or benzodiazepines.

Zolpidem users are warned that it should not be combined with other CNS depressants due to risk of respiratory impact, impairment to alertness and motor coordination.

Additional information for trainers: benzodiazepines include specific labels and warning about potential dependence, tolerance, and withdrawal effects of long-term use.



Slide 18: Percent Using Psychotropic Medications, US

Among all Americans, 16.7% currently use any psychotropic medication. 12% use antidepressants, 8.3% use anxiolytics/sedatives, and 1.6% use antipsychotics.



****ANIMATION INSTRUCTIONS****

This slide is animated upon clicking.

The first click reveals the graph “Percent Using Medications by Gender, US;” red lines will animate across the screen, connecting the overall “Percent Using” category to its corresponding category on the right-hand graph.

Among males, 11.9% are using any psychotropic, 7.7% are using antidepressants, 6.1% are using anxiolytics/sedatives, and 1.5% are using antipsychotics; among females, 21.2% are using any psychotropic, 15.9% are using antidepressants, 10.3% are using anxiolytics/sedatives, and 1.7% are using antipsychotics.

Click to animate out the previous graph and click to reveal the next graph, “Percent Using Psychotropic Medications by Age, US.”

(Notes for Slide 18, continued)

Slide 18: Percent Using Psychotropics Medications, US

Among 18-39 year-olds, 9% are using any psychotropics, 6.6% are using antidepressants, 4% are taking anxiolytics/sedatives, and 1.3% are using antipsychotics; among 40-59 year-olds, 18.8% are using any psychotropics, 13.7% are using antidepressants, 9.2% are taking anxiolytics/sedatives, and 2.1% are using antipsychotics; among 60-85 year-olds, 25.1% are using any psychotropics, 17.3% are using antidepressants, 13.2% are taking anxiolytics/sedatives, and 1.4% are using antipsychotics.

Click to animate out the previous graph and click to reveal the next graph, "Percent Using Psychotropic Medications by Race/Ethnicity, US."

(Notes for Slide 18, continued)

Slide 18: Percent Using Psychotropics Medications, US

Among white individuals, 20.8% are using any psychotropics, 15% are using antidepressants, 10.1% are taking anxiolytics/sedatives, and 1.7% are using antipsychotics; among black individuals, 9.7% are using any psychotropics, 6.2% are using antidepressants, 4.7% are taking anxiolytics/sedatives, and 1.9% are using antipsychotics; among Hispanic individuals, 8.7% are using any psychotropics, 5.7% are using antidepressants, 5% are taking anxiolytics/sedatives, and 1.3% are using antipsychotics; among Asian individuals, 4.8% are using any psychotropics, 3.1% are using antidepressants, 2.3% are taking anxiolytics/sedatives, and 0.7% are using antipsychotics.



REFERENCE:

Moore, T.J. & Mattison, D.R. (2016). Adult utilization of psychiatric drugs by sex, age, and race. *JAMA Internal Medicine*, 177(2), 274-275.

(based on 2013 Medical Expenditure Panel Survey)

What Medications are Being Used?

Rank	Drug Name (Brand Name)	Mechanism of Action	Reported Use (in thousands)	Prescriptions per person
1	Sertraline hydrochloride (Zoloft)	SSRI Antidepressant	6223	5.8
2	Citalopram hydrobromide (Celexa)	SSRI Antidepressant	5403	5.6
3	Alprazolam (Xanax)	Benzodiazepine	5259	4.9
4	Zolpidem tartrate (Ambien)	Hypnotic	4865	5.0
5	Fluoxetine hydrochloride (Prozac)	SSRI Antidepressant	4259	5.5
6	Trazodone hydrochloride (Desyrel)	SARI Antidepressant	4166	5.6
7	Clonazepam (Klonopin)	Benzodiazepine	3273	6.3
8	Lorazepam (Ativan)	Benzodiazepine	3165	4.9
9	Escitalopram oxalate (Lexapro)	SSRI Antidepressant	3065	5.5
10	Duloxetine hydrochloride (Cymbalta)	SNRI Antidepressant	2709	5.7

Slide 19: What Medications are Being Used?

This table presents the top ten prescribed psychiatric medications from the 2013 Medical Expenditures Survey, aged 18 to 85 years old. The table also notes the number of prescriptions filled by individuals for a particular medication during that period of time, noting that most users of psychiatric medications are long-term users (classified as 3 or more prescriptions filled in one year).

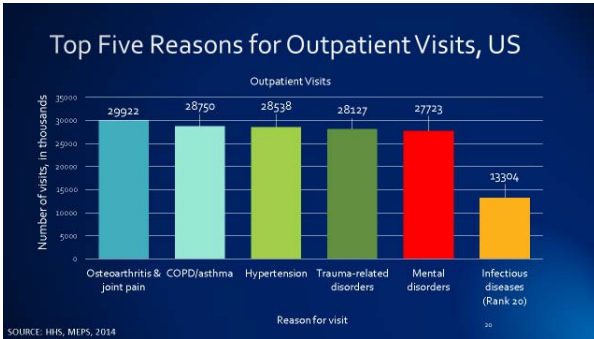
Additional information for trainers:

SSRI – selective serotonin reuptake inhibitor

SNRI – serotonin norepinephrine reuptake inhibitor

SARI – serotonin antagonist reuptake inhibitor

The top 2 medications listed are antidepressants, 4 of the top 6 are antidepressants.



Slide 20: Top Five Reasons for Outpatient Visits, US



This slide presents information from the Health and Human Services 2014 Medical Expenditure Panel Survey. In connection with the previous slide, in which information related to the number and types of medications individuals are prescribed is presented, this and the next three slides begin to expand participants' understanding of who is going to the doctor and for what. To highlight in this slide: among the reasons for outpatient visits in the United States, mental disorders ranks fifth. This is useful in beginning to understand that the more people who go to the doctor for mental disorder treatment, the more individuals are likely to be prescribed psychiatric medications. The narrative of conceptualizing why people are going to the doctor continues on the next slide.

(Notes for Slide 20, continued)

Slide 20: Top Five Reasons for Outpatient Visits, US

Additional information for trainers:

HIV is included in infectious diseases for the purposes of this study; that data point is included for participant's reference. Infectious disease visits rank 20th, with approximately 13,304,000 outpatient visits occurring in 2014.



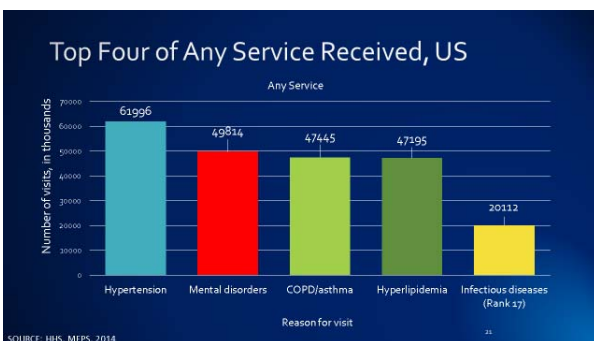
REFERENCE:

Medical Expenditure Panel Survey (MEPS). Content last reviewed April 2015. Agency for Healthcare Research and Quality, Rockville, MD. Downloaded from:

<http://www.ahrq.gov/research/data/me/ps/index.html>

Slide 21: Top Four of Any Service Received, US

This slide is a continuation from the previous slide and presents information from the Health and Human Services 2014 Medical Expenditure Panel Survey. This slide illustrates the top four reasons for any service in the United States during 2014.



(Notes for Slide 21, continued)

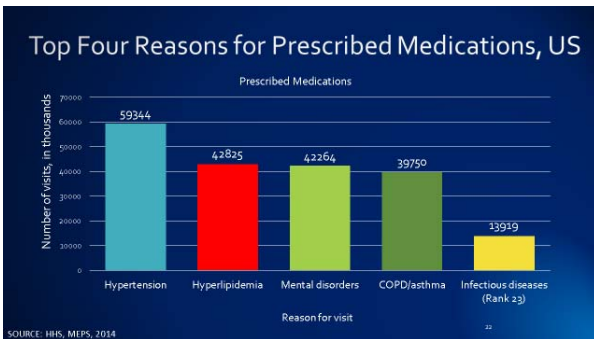
Slide 21: Top Four of Any Service Received, US

Whereas mental disorders ranked fifth among outpatient visits, mental disorders ranks second among any visit. This indicates that while individuals may be going to the doctor for outpatient treatment of mental disorders, they are utilizing more services more frequently than only outpatient interventions, indicating a significant healthcare need among the general population.

Additional information for trainers:

HIV is included in infectious diseases for the purposes of this study; that data point is included for participant's reference. Infectious disease visits rank 17th among all services provided, with approximately 20,112,000 outpatient visits occurring in 2014.

(Notes for Slide 21, continued)



Slide 21: Top Four of Any Service Received, US



REFERENCE:

Medical Expenditure Panel Survey (MEPS). Content last reviewed April 2015. Agency for Healthcare Research and Quality, Rockville, MD. Downloaded from:

<http://www.ahrq.gov/research/data/me/ps/index.html>

Slide 22: Top Four Reasons for Prescribed Medications, US

This slide is a continuation from the previous slide and presents information from the Health and Human Services 2014 Medical Expenditure Panel Survey. This slide illustrates the top four reasons for prescribed medications in the United States during 2014. Mental disorders ranks third as the most common reasons for prescribing medications. This indicates that a significant portion of the population is accessing services for mental health needs, as indicated on the previous slide of “any services,” specifically, obtaining prescriptions to address mental health needs.

(Notes for Slide 22, continued)

Slide 22: Top Four Reasons for Prescribed Medications, US

Additional information for trainers:

HIV is included in infectious diseases for the purposes of this study; that data point is included for participant's reference. Infectious disease visits rank 23rd among all services provided, with approximately 13,919,000 outpatient visits occurring in 2014.



REFERENCE:

Medical Expenditure Panel Survey (MEPS). Content last reviewed April 2015. Agency for Healthcare Research and Quality, Rockville, MD. Downloaded from:

<http://www.ahrq.gov/research/data/me/ps/index.html>

Slide 23: Health Disparities

The previous slides indicated the reasons that individuals are going to the doctor with mental disorders and obtaining medications to treat mental disorders ranking within the top five of all reasons individuals go to the doctor.



Health Disparities

- Documented disparities in utilization by older adults
- Whites used more prescription medications and had higher expenditures than African Americans and Hispanics
- Being unable to afford medication and cost-related nonadherence were key factors in differences
- Medicare Part D reduced some disparities but did not eliminate them
- Additional disparities may persist due to access to care, transportation availability, income, education, language barriers
- Rates of use for black and Asian adults were lower than for white adults
- Women were twice as likely to take medications compared to men

SOURCE: Mahmoudi & Jensen, 2014

(Notes for Slide 23, continued)

Slide 23: Health Disparities

While there have been efforts to reduce disparities in access to services and the way in which medications are prescribed and utilized, they have not been completely eliminated.

Substantial documentation exists regarding disparities that exist in utilization of medications and medication services for mental disorders by older adults, including whites using more prescription medications than African-American and Hispanic counterparts. This highlights a potential barrier to treatment in that non-White patients were routinely unable to afford their medication which increased cost-related non-adherence and could potentially result in exacerbation of existing symptoms. Medicare regulation Part D was developed to reduce these disparities but have not completely eliminate them, indicating that recognizing these disparities and reducing barriers to access would be a useful component of treatment.

There are additional disparities that may exist between groups due to access to care, transportation availability, income, education and language barriers.

(Notes for Slide 23, continued)

Slide 23: Health Disparities

In general, the rates of use of psychotropic medications for black and Asian adults is lower than white adults, and women are twice as likely to take medications as compared to men. This serves as a summary for the graph on Slide 18 that indicated differences in use by gender, age, and race/ethnicity.



REFERENCE:

Mahmoudi, E., & Jensen, G. A. (2014). Has Medicare Part D Reduced Racial/Ethnic Disparities in Prescription Drug Use and Spending? *Health Services Research, 49*(2), 502–525.

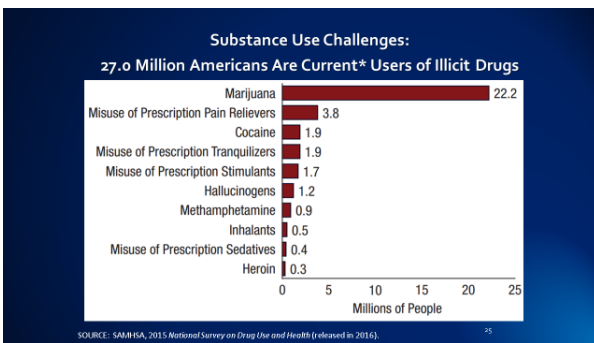
Slide 24: The Challenge of Illicit Use



This slide serves to transition from understanding the extent of prescribing and use of psychotropics to emphasizing the prevalence of substance use and mental health disorders that may complicate treatment or cause diversion of prescribed medications.



(Notes for Slide 24, continued)



Slide 24: The Challenge of Illicit Use



IMAGE CREDITS:

Fotolia, purchased images, 2017

Slide 25: Substance Use Challenges: 27.0 Million Americans are Current Users of Illicit Drugs

This slide indicates that nearly 30 million people reported past-month use of an illicit drug. “Current use” is defined as use within the past 30 days. Marijuana ranked first in past-month use; non-medical use of prescription drugs ranked second. For the past two years, similar numbers of people initiated use of marijuana and non-medical use of prescription drugs.

This graph also breaks out the use of illicit drugs from use of prescription medications not as intended by a physician, providing a useful picture of the extent to which people are currently abusing medications. Among the psychotropics, tranquilizers (including benzodiazepines and anxiolytics) and stimulants rank the highest.

(Notes for Slide 25, continued)

Slide 25: Substance Use Challenges: 27.0 Million Americans are Current Users of Illicit Drugs



REFERENCE:

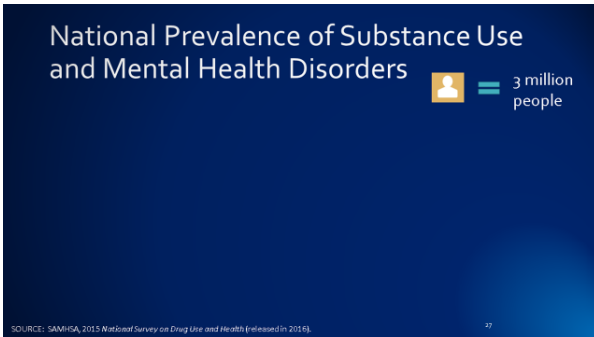
Center for Behavioral Health Statistics and Quality. (2016). *2015 National Survey on Drug Use and Health: Methodological summary and definitions*. Rockville, MD: Substance Abuse and Mental Health Services Administration.



Slide 26: Substance Use Disorders

Prolonged and heavy marijuana use can eventually lead to substance abuse and dependence, which together are known as **substance use disorders**. Substance use disorders fall on a continuum of problematic alcohol and drug use. Highly problematic levels of substance use—called substance abuse and substance dependence—are defined as “disorders,” instead of just “problematic” substance use. A substance use disorder is a state in which an individual compulsively uses alcohol or drugs even when faced with negative consequences. This behavior is reinforcing, or rewarding.

(Notes for Slide 26, continued)



Slide 26: Substance Use Disorders

A major feature of a substance use disorder is the loss of control in limiting intake of the addictive substance. When working with patients who use alcohol or drugs, it is important to figure out where patients fall on this spectrum; some may have serious problems and need to abstain from alcohol and drugs, while others may not need to stop all together, but reduce use to prevent adverse effects.

Slide 27: National Prevalence of Substance Use and Mental Health Disorders

Considering the prevalence of substance use disorders allows us to better understand the extent to which individuals may be using medications not as prescribed or intended. Additionally, considering occurrences of severe mental illness and substance use disorder is important in understanding the potential for individuals who may be more likely to be prescribed psychotropic medications (individuals with severe mental illness) to abuse substances. The data presented here are from the National Survey on Drug Use and Health(NSDUH), which defines severe mental illness(SMI) as:

(Notes for Slide 27, continued)

Slide 27: National Prevalence of Substance Use and Mental Health Disorders

- a mental, behavioral, or emotional disorder (excluding developmental and substance use disorders)
- diagnosable currently or within the past year
- of sufficient duration to meet diagnostic criteria specified within the 5th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5)
- resulting in serious functional impairment, which substantially interferes with or limits one or more major life activities



****ANIMATION INSTRUCTIONS****

This slide is animated upon clicking.

Each of the individual boxes presented in the animations represent 3 million people, as indicated in the key in the top right of the slide.

(Notes for Slide 27, continued)

Slide 27: National Prevalence of Substance Use and Mental Health Disorders

The first animation is automatic and reveals the “Current Users of Illicit Drugs.” The representation of the number of current users will animate from left to right.

National prevalence data of substance use disorders indicates 27.1 million were current users of illicit drugs.

Click to advance the animation and reveal the next set of data: “Individuals with a Substance Use Disorder.” The representation of the number of current users will fill in on the existing bar from bottom to top, representing a subset of the Current Users bar.

National prevalence data of substance use disorders indicates 20.8 million individuals has a substance use disorder.

Click to advance the animation and reveal the next set of data: “Current Users of Alcohol.”

National prevalence data of substance use disorders indicates 138.3 million individuals currently use alcohol. This representation serves to contrast the high number of alcohol users as compared to any illicit substance use.

(Notes for Slide 27, continued)

Slide 27: National Prevalence of Substance Use and Mental Health Disorders

Click to reveal the “Individuals with a Mental Health Disorder.” The representation of the number of individuals will animate from left to right.

National prevalence data of mental health disorders indicates 43.4 million currently have a mental health disorder.

Click to advance the animation and reveal the next set of data: “Individuals with a Mental Health Disorder and Substance Use Disorder.” The representation of the number of individuals will fill in on the existing bar from bottom to top, representing a subset of the Individuals with a Mental Health Disorder bar.

National prevalence data of mental health disorders indicates 8.1 million individuals have a co-occurring substance use disorder.

(Notes for Slide 27, continued)

Slide 27: National Prevalence of Substance Use and Mental Health Disorders

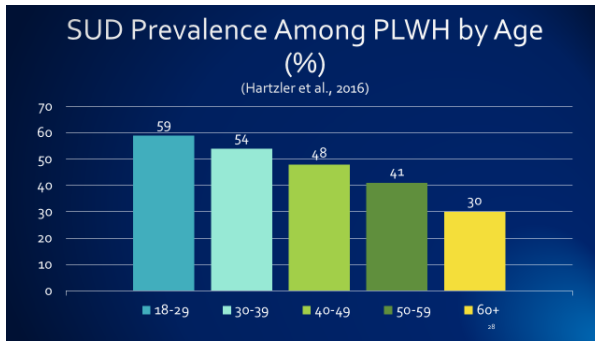
Click to advance the animation and reveal the next set of data: “Individuals with a Severe Mental Health Disorder and Substance Use Disorder.” The representation of the number of individuals will fill in on the existing bar from bottom to top, representing a subset of the Individuals with a Mental Health Disorder bar.

National prevalence data of mental health disorders indicates 2.3 million individuals have a co-occurring substance use disorder and severe mental illness.



REFERENCE:

Center for Behavioral Health Statistics and Quality. (2016). *2015 National Survey on Drug Use and Health: Methodological summary and definitions*. Rockville, MD: Substance Abuse and Mental Health Services Administration.



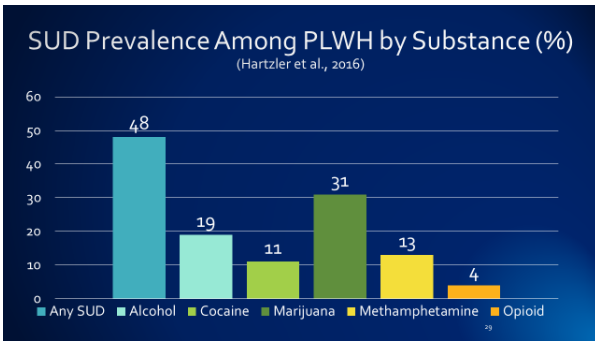
Slide 28: SUD Prevalence Among PLWH by Age (%)

This slide presents information related to SUD prevalence among people living with HIV in consideration of the way in which individuals diagnosed with HIV are affected by substance abuse and substance use disorders. The information in this study is based on a sample of over 10,000 HIV-positive adults in care at 7 sites around the country. Substance use disorder prevalence is highest among individuals aged 18-29, with decreasing prevalence the older an individual is.



REFERENCE:

Hartzler, B., Dombrowski, J.C., Crane, H.M., Eron, J.J., Geng, E.H., et al. (2016). Prevalence and predictors of substance use disorders among HIV care enrollees in the United States. *AIDS & Behavior*, 1-11.



Slide 29: SUD Prevalence Among PLWH by Substance (%)

This slide continues the information from the previous slide, identifying the prevalence of substance use disorders among people living with HIV, grouped by type of substance. Among all people living with HIV, 48% report any substance use disorder. Marijuana is the most common substance of abuse (31%). Alcohol (19%) and methamphetamine (13%) are the next most common, followed by cocaine (11%) and opioids (4%).



REFERENCE:

Hartzler, B., Dombrowski, J.C., Crane, H.M., Eron, J.J., Geng, E.H., et al. (2016). Prevalence and predictors of substance use disorders among HIV care enrollees in the United States. *AIDS & Behavior*, 1-11.

Substance Use and HIV: HAND

- Studies suggest that in some human immunodeficiency virus-1 (HIV) infected individuals, the development of HIV-associated neurocognitive disorders (HAND) is accelerated and/or its severity increased with substance abuse, in the absence or presence of prescribed combination antiretroviral therapy (cART).

SOURCE: Rippeth et al. 2004; Hauser et al. 2007; Busch et al. 2012; Meyer et al. 2013; Weber et al. 2013; Meade et al. 2015 31

Slide 30: Substance Use and HIV: HAND

The interaction between HIV and the development of HIV-associated neurocognitive disorders is complex and dependent upon multiple factors. One of which is the administration of illicit substances. Substance abuse has been shown to have a detrimental impact on cognitive functioning among PLWH, regardless of whether or not the individual was adhering to combination antiretroviral therapies.



REFERENCES:

- Busch, K.E., Laurent, P., Soltesz, Z., Murphy, R.J., Faivre, O., et al. (2012). Tonic signaling from O₂ sensors sets neural circuit activity and behavioral state. *Nature Neuroscience*, 15, 581-591.
- Calderon, T.M., Williams, D.W., Lopez, L., Eugenin, E.A., Cheney, L. et al. (2017). Dopamine Increases CD14+C16+ Monocyte Transmigration across the Blood Brain Barrier: Implications for Substance Abuse and HIV Neuropathogenesis. *Journal of Neuroimmune Pharmacology*, 12(2), 353-370.

(Notes for Slide 30, continued)

Slide 30: Substance Use and HIV: HAND

Hauser, K.F., El-Hage, N., Stiene-Martin, A., Maragos, W.F., Nath, A. et al. (2007). HIV-1 neuropathogenesis: glial mechanisms revealed through substance abuse. *Journal of Neurochemistry*, *100*(3), 567-586.

Meade, C.S., Towe, S.L., Skalski, L.M., & Robertson, K.R. (2015). Independent effects of HIV infection and cocaine dependence on neurocognitive impairment in a community sample living in the southern United States. *Drug and Alcohol Dependence*, *149*(1), 128-135.

Meyer, A.L., Boscardin, W.J., Kwasa, J.K., & Price, R.W. (2013). Is It Time To Rethink How Neuropsychological Tests Are Used to Diagnose Mild Forms of HIV-Associated Neurocognitive Disorders? Impact of False-Positive Rates on Prevalence and Power. *Neuroepidemiology*, *41*, 208-216.

Weber, E., Blackstone, K., & Woods, S.P. (2013). Cognitive Neurorehabilitation of HIV-associated Neurocognitive Disorders; A Qualitative Review and Call to Action. *Neuropsychology Review*, *23*(1), 81-98.

(Notes for Slide 30, continued)



Slide 30: Substance Use and HIV: HAND

Rippeth, J., Heaton, R., Carey, C., Marcotte, T., Moore, D., et al. (2004). Methamphetamine dependence increases risk of neuropsychological impairment in HIV infected persons. *Journal of the International Neuropsychological Society*, 10(1), 1-14.

Slide 31: Psychotropic Factors and HIV



This slide serves to transition from examining prevalence of substance use disorders and mental health disorders to expanding upon additional risk factors among people living with HIV who may be at risk of additional health related consequences due to a combination of physical health status, mental health impairment, and ongoing substance use issues.



IMAGE CREDITS:

Fotolia, purchased images, 2017

HIV and MNS

- Mental, neurological and substance (MNS) issues often arise in individuals with HIV
- MNS may occur at rates exceeding physical co-morbidities
- Development of MNS is associated with reduced ART adherence, lower quality of life, and functional impairments leading to more negative mental health and medical outcomes
- Depression is 2x as common in PLWH than in non-HIV infected individuals
- These factors lead to higher rates of use of psychotropic medications by PLWH

SOURCE: Kaaya et al, 2013

32

Slide 32: HIV and MNS

Recognizing the possibility of co-occurring mental, neurological, or substance use issues among individual with HIV helps to understand treatment needs. “Exceeding physical co-morbidities” includes a cluster of physical issues under the following organ systems: vascular disease (myocardial infarction, coronary artery disease, stroke, peripheral vascular disease; pulmonary diseases (COPD, pulmonary hypertension, asthma, bronchiectasis, pneumoconiosis; liver disease (hepatitis B and C).



REFERENCE:

Kaaya, S., Eutache, E., Lapidos-Salaiz, I., Musisi, S., Psaros, C. & Wissow, L. (2013). Grand Challenges: Improving HIV Treatment Outcomes by Integrating Interventions for Co-Morbid Mental Illness. *PLOS Medicine*, 10(5), 1-5.

Worldwide Prevalence

- Worldwide prevalence of SMI is about 4.6 per 1000
- US prevalence of SMI is about 7.2 per 1000
- People with SMI have increasing health inequities and are at higher risk of blood-borne viruses
- Increased risk due to engaging in behaviors that increase likelihood of infection:
 - Unprotected sex
 - Sex work/trading
 - IV drug use
 - Hypersexuality due to acute phases of mental illness

SOURCE: Hughes, Bassi, Gilbody, Bland & Martin, 2016

33

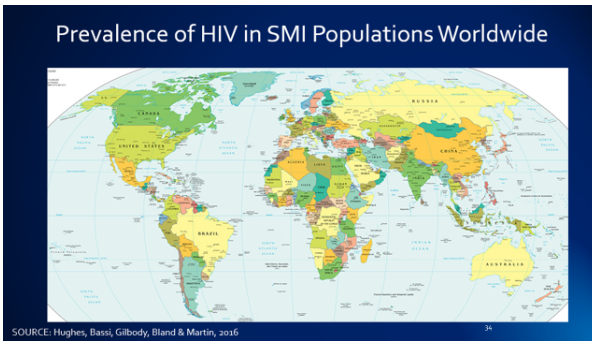
Slide 33: Worldwide Prevalence

Among individuals with severe mental illness, there is an increased risk of HIV infection due to health behaviors and inequities that can contribute to contracting blood-borne viruses. Behaviors and symptomatology associated with severe mental illness that may play a role in increasing the risk of blood-borne virus contraction include engaging in unprotected sex, trading sex or engaging in sex work for money, intravenous drug use, and hypersexuality that may result from an acute phase of a mental illness episode. Of particular note as well is that the prevalence of SMI in the US is nearly twice as high as the worldwide prevalence.



REFERENCE:

Hughes, E., Bassi, S., Gilbody, S., Bland, M., & Martin, F. (2016). Prevalence of HIV, hepatitis B, and hepatitis C in people with severe mental illness: a systematic review and meta-analysis. *Lancet Psychiatry*, 3, 40-48.



Slide 34: Prevalence of HIV in SMI Populations Worldwide

This slide has representations of the prevalence of HIV among SMI populations. As the graph animates in, the red lines will note the percent of SMI individuals within a particular region/continent who have been diagnosed with HIV. Note that among the various population in the world, the US experiences a higher rate of HIV among the SMI population than any other region except for Africa. This indicates that, as reference on the previous slide, not only are there higher rates of severe mental illness in the United States but those individuals with SMI are disproportionately affected by HIV compared to non-SMI individuals in the US and SMI individuals across the world (with the exception of Africa). Specify that while we have general rates of diagnosis among certain regions, the study did not report rates for specific countries in some regions.



****ANIMATION****

This slide is animated upon clicking.

(Notes for Slide 34, continued)

Slide 34: Prevalence of HIV in SMI Populations Worldwide

The first click reveals the blue bar over the United States that represents the percent of individuals in the general population who have HIV.

0.4% of individuals in the United States are identified as having been infected with HIV.

Click to animate the next bar.

The red bar over the United States represents the percent of SMI individuals who have been diagnosed with HIV. Among SMI populations, 6% have been diagnosed with HIV.

Click to animate the next bar.

The red bar over Europe represents the percent of SMI individuals in Europe who have been diagnosed with HIV. Among SMI populations in Europe, 1.9% have been diagnosed with HIV.

Click to animate the next bar.

The red bar over China represents the percent of SMI individuals in Asia who have been diagnosed with HIV. Among SMI populations in Asia, 1.5% have been diagnosed with HIV.

(Notes for Slide 34, continued)

Slide 34: Prevalence of HIV in SMI Populations Worldwide

Click to animate the next bar.

The red bar over Brazil represents the percent of SMI individuals in South America who have been diagnosed with HIV. Among SMI populations in South America, 2.7% have been diagnosed with HIV.

Click to animate the last next bar.

The red bar over Africa represents the percent of SMI individuals in Africa who have been diagnosed with HIV. Among SMI populations in Africa, 19.2% have been diagnosed with HIV.



REFERENCE:

Hughes, E., Bassi, S., Gilbody, S., Bland, M., & Martin, F. (2016). Prevalence of HIV, hepatitis B, and hepatitis C in people with severe mental illness: a systematic review and meta-analysis. *Lancet Psychiatry*, 3, 40-48.

(Notes for Slide 34, continued)

HIV Risk Factors for SMI Populations Worldwide

- Tend to be similar in high and low HIV-prevalence areas
- Black
- Female
- Injection drug use
- Risky sexual behaviors
 - Not using a condom
 - Having multiple partners
 - Sex trading
 - Unprotected sex with a partner infected with a blood-borne virus

SOURCE: Hughes, Bassi, Gilbody, Bland & Martin, 2016

Slide 34: Prevalence of HIV in SMI Populations Worldwide



IMAGE CREDIT:

Shelf, R.I. University of Texas Libraries.

Downloaded from:

https://www.lib.utexas.edu/maps/world_maps/world_pol_2013.pdf.

Slide 35: HIV Risk Factors for SMI Populations Worldwide



Review the bulleted risk factors on the slide that describe the global risk factors for HIV among SMI populations.

Additional information for trainers:

Additional HIV risk factors exist for severely mentally ill populations worldwide. One theory regarding higher prevalence among women is due to SMI making individuals vulnerable to exploitation or sexual assault; as well as cultural power differentials that may have reduced refusal or condom negotiation during sexual activity.

(Notes for Slide 35, continued)

Treatment for PLWHA with Co-Occurring SUD and SMI

- The good news: research indicates that with high quality, integrated care, SMI PLWHA achieve outcomes similar to other PLWHA without SMI
- There are relatively few treatment guidelines for comorbid HIV/AIDS and mental illness/substance use
- Previous studies focusing on first-line medication found similarities between providers (39%)
 - Depression treated with escitalopram/citalopram
 - Psychosis and secondary mania treated with quetiapine
 - Anxiety treated with clonazepam

SOURCE: Blank, Himmelhoch, Walkup & Eisenberg, 2013

Slide 35: HIV Risk Factors for SMI Populations Worldwide



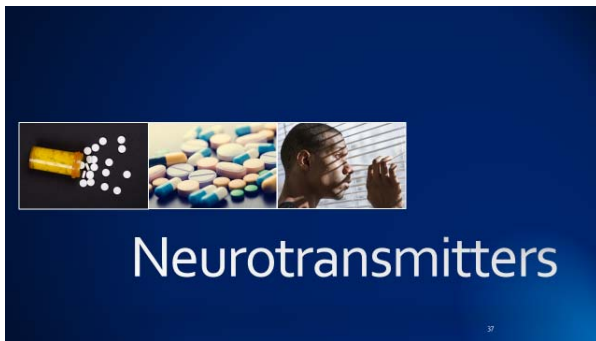
REFERENCE:

Hughes, E., Bassi, S., Gilbody, S., Bland, M., & Martin, F. (2016). Prevalence of HIV, hepatitis B, and hepatitis C in people with severe mental illness: a systematic review and meta-analysis. *Lancet Psychiatry*, 3, 40-48.

Slide 36: Treatment for PLWHA with Co-Occurring SUD and SMI

Despite the fact that significant risk of HIV infection is present for individuals with severe mental illness, and impacts of substance use can exacerbate risks, as well as existing physical and mental health impairments, there are treatment recommendations for individuals with HIV and co-occurring substance use and severe mental illness. Additionally, research indicates that individuals living with HIV and severe mental illness can achieve outcomes in treatment that are similar to non-severely mentally ill counterparts. The key is efforts to engage individuals in high quality, integrated services.

(Notes for Slide 36, continued)



Slide 36: Treatment for PLWHA with Co-Occurring SUD and SMI

There also exists some consensus among providers as to first-line medications for treatment of depression, psychosis, secondary mania, and anxiety among PLWHA.



REFERENCE:

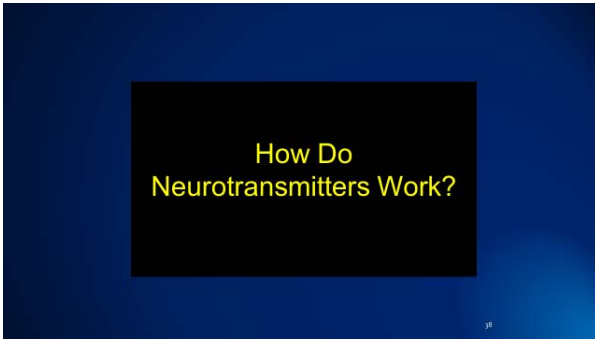
Blank, M. B., Himelhoch, S., Walkup, J., & Eisenberg, M. M. (2013). Treatment Considerations for HIV-Infected Individuals with Severe Mental Illness. *Current HIV/AIDS Reports, 10(4)*.

Slide 37: Neurotransmitters



Now that participants understand the interactions between substance use, mental health, HIV and psychotropic prescribing, transition into understanding the mechanism of action for various psychotropic medicines and how they affect key neurotransmitters in the brain.

(Notes for Slide 37, continued)



Slide 37: Neurotransmitters



IMAGE CREDITS:

Fotolia, purchased images, 2017

Slide 38: How Do Neurotransmitters Work?



Click to play the video. Upon click, the title will animate out and the video will start in full screen automatically. When moving the PowerPoint file to another location on your computer or to another computer, make sure to always move the video file along with it.

If the link becomes broken, the video will need to be reinserted. From the insert menu in PowerPoint, select "movie." Select the video file that was included for this training. When asked, indicate that the movie should play automatically. It will appear as a black box on the screen. Move the black box behind the Slide Title text box and it should play when the slide show is being viewed when the trainer clicks advance.

The video demonstrates how neurotransmitters work in the brain.

(Notes for Slide 38, continued)

Normal Functions	Illicit Drugs that Disrupt Functioning	Associated Mental Illness	Medications to Rebalance
Mood stability, appetite, sleep control, sexual activity, aggression, self-esteem	Alcohol, nicotine, methamphetamine, cocaine, LSD, PCP, MDMA	Anxiety, mood disorders	SSRI's, SNRI's, tricyclic antidepressants, atypical antidepressants

Normal Functions	Illicit Drugs that Disrupt Functioning	Associated Mental Illness	Medications to Rebalance
Muscle tone/control, motor behavior, energy, reward mechanisms, attention span, pleasure	Cocaine, nicotine, PCP, meth, caffeine, LSD, marijuana, alcohol, opioid	Psychotic disorders; Parkinson's Disease	Dopamine agonists, anti-Parkinson's, some antidepressants like Wellbutrin

Slide 38: How do Neurotransmitters Work?



VIDEO SOURCE:

Meth Inside Out,

<http://www.methinsideout.com/>.

Slide 39: Serotonin

The next 4 slides present a type of neurotransmitter, i.e. serotonin, along with its normal functions, examples of illicit drugs that can disrupt its functioning, the type of mental illness the neurotransmitter is associated with, and the types of medications used to address imbalances of the neurotransmitter.

Slide 40: Dopamine

This slide presents a type of neurotransmitter, dopamine (the “feel good” neurotransmitter), along with its normal functions, examples of illicit drugs that can disrupt its functioning, the type of mental illness the neurotransmitter is associated with, and the types of medications used to address imbalances of the neurotransmitter.

Epinephrine, Norepinephrine

Normal Functions	Illicit Drugs that Disrupt Functioning	Associated Mental Illness	Medications to Rebalance
Energy, motivation, eating, heart rate, blood pressure, confidence, alertness	Cocaine, meth, nicotine, MDMA, marijuana, 2CB	Anxiety, depression, attention disorders	Wellbutrin, Ritalin, SNRIs, beta blockers

Slide 41: Epinephrine, Norepinephrine

This slide presents a type of neurotransmitter (epinephrine and norepinephrine – “fight or flight” neurotransmitters), along with its normal functions, examples of illicit drugs that can disrupt its functioning, the type of mental illness the neurotransmitter is associated with, and the types of medications used to address imbalances of the neurotransmitter.

Acetylcholine

Normal Functions	Illicit Drugs that Disrupt Functioning	Associated Mental Illness	Medications to Rebalance
Memory, learning, reflexes, blood pressure, heart rate, sexual behavior, sleep, mental acuity	Marijuana, nicotine, alcohol, PCP, cocaine, amphetamine, LSD	Alzheimer's disease, schizophrenia	Benzotropine, diphenhydramine

Slide 42: Acetylcholine

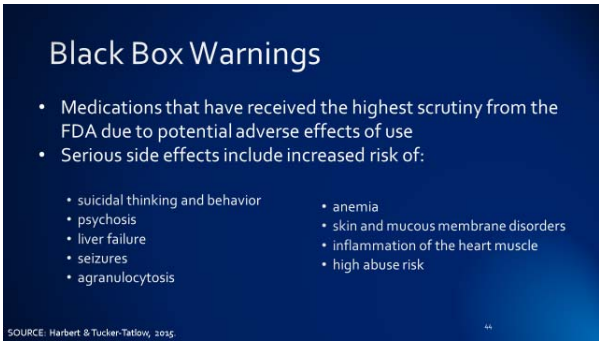
This slide presents a type of neurotransmitter (acetylcholine), along with its normal functions, examples of illicit drugs that can disrupt its functioning, the type of mental illness the neurotransmitter is associated with, and the types of medications used to address imbalances of the neurotransmitter.



Slide 43: A Review of Medications by Disorder



This section will present categories of disorders and discuss the prevalence of those disorders (among PLWHA, when available) and then associated medications used to treat that particular mental health disorder.



Slide 44: Black Box Warnings

Before reviewing the different medications, it is essential to note for training participants that many psychotropic medications contain “Black Box” warnings of dangers of use that can include significant effects on health as well as an increase in suicidal thinking and behavior. Of particular concern are antidepressants, all of which contain a black box warning for a potential increase in suicidal thinking and behavior.

agranulocytosis – a decrease in white blood cells, a type of infection-fighting blood cell; can result from medication use, substance abuse, HIV

(Notes for Slide 44, continued)



Slide 44: Black Box Warnings



REFERENCE:

Harbert, A. & Tucker-Tatlow, J. (2015). *Literature Review: Psychotropic Medication and Foster Youth*. Southern Area Consortium of Human Services, San Diego State University. Downloaded from: <https://pdfs.semanticscholar.org/785e/c5a72a864ad80505f2680121ebdefb8839aa.pdf>.

Slide 45: Depression



This section will detail depression prevalence, mechanisms of depression and medications used to treat depression.



IMAGE CREDITS:

Fotolia, purchased images, 2017

Prevalence of Depressive Disorders among PLWH

- Major depressive disorder: 7%
- Persistent depressive disorder(dysthymia): 0.5%-1.5%

- Predictors of depressive disorder include neuroticism (negative affectivity), adverse childhood experiences, stressful life events, first-degree family members of individuals with major depressive disorder, genetic liability, substance use, anxiety, personality disorders, chronic illness, diabetes, obesity, cardiovascular diseases

Slide 46: Prevalence of Depressive Disorders in the General Population

The prevalence of different diagnostic subtypes of depression can vary. Major depressive disorder among the PLWH is approximately 7% while dysthymia is between 0.5% and 1.5%. There are a number of predictors of depressive disorder including early childhood experiences and developmental trauma, as well as on-going life stressors and changes in physical health status.

Additional information for trainers:

The 12-month prevalence of major depressive disorder among the general population of the United States is approximately 3.8%.



REFERENCE:

Chaudhury, S, Bakhla, A, & Saini, R. (2016). Prevalence, impact, and management of depression and anxiety in patients with HIV: a review. *Neurobehavioral HIV Medicine*, 7, 15-30.

Neurotransmitters and Depression

- The deficit of certain neurotransmitters (monoamines) is responsible for the corresponding features of depression:
 - Norepinephrine may be related to alertness and energy as well as anxiety, attention, and interest in life;
 - Lack of serotonin related to anxiety, obsessions, and compulsions;
 - Lack of dopamine is related to attention, motivation, pleasure, and reward, as well as interest in life

SOURCE: Stahl, 2013

47

Slide 47: Neurotransmitters and Depression

Note that, as discussed on the previous slide, there are many factors that many contribute to depression, including abnormalities in the circadian rhythm, or biological clock. However, the current hypothesis of the development of depression from a neurochemical framework identifies a deficit in certain groups of neurotransmitters called monoamines. The lack of these monoamines results in an upregulation process in the brain in which additional receptors are created to try to counterbalance the lack of the available neurotransmitters. The neurotransmitters that are responsible for this shift in balance are: norepinephrine, serotonin, and dopamine.

Additional information for trainers:

An additional offshoot of the monoamine hypothesis is the monoamine oxidase-A hypothesis, which states that monoamine oxidase-A, which metabolizes the monoamine neurotransmitters, is overly active in people with depression, leading to lower levels of those neurotransmitters.

(Notes for Slide 47, continued)

Altered Neuroplasticity in Depression

- Neuroplasticity is the ability of the brain to develop new connections
- Neuroplasticity is critical for ongoing brain functioning
- Monoamine deficiency and chronic stress reduce neuroplasticity
- Depressed subjects show evidence of impaired neuroplasticity
- Anti-depressant medications enhance neuroplasticity
- The conclusion is that disrupted neuroplasticity is an underlying feature of depression and is reversed by antidepressants

SOURCE: Pittenger & Duman, 2008; Grimonprez, Raedt, Baeken & Voonck, 2015

Slide 47: Neurotransmitters and Depression



REFERENCES:

Carlson, N. (2005). *Foundations of Physiological Psychology*, 6th Ed. Boston, MA: Allyn and Bacon

Castrén, E. (2005). Is mood chemistry? *Nature Reviews Neuroscience*, 6(3), 241-246.

Stahl, S. (2013). *Stahl's Essential Psychopharmacology: Neuroscientific Basis and Practical Applications*. United Kingdom: Cambridge University Press.

Slide 48: Altered Neuroplasticity in Depression

Neuroplasticity is an important concept in understanding how and why counseling and therapy work.

Neuroplasticity is the brain's ability to develop, grow, conform, and adapt to different situations by developing new connections between neurons. Structure and consistency, as well as the development and reinforcement of new skills, in treatment promote neuroplasticity in regions of the brain useful for attention, concentration, judgement, and impulse control.

(Notes for Slide 48, continued)

Antidepressants

- **SSRIs**
 - Fluoxetine (Prozac)
 - Citalopram (Celexa)
 - Sertraline (Zoloft)
 - Paroxetine (Paxil)
 - Escitalopram (Lexapro)
- **SNRIs**
 - Duloxetine (Cymbalta)
 - Venlafaxine (Effexor)



49

Slide 48: Altered Neuroplasticity in Depression

Studies show that neuroplasticity is impaired in depression, and that antidepressants can increase neuroplasticity.



REFERENCE:

Pittenger, C. & Duman, R.S. (2008). Stress, Depression, and Neuroplasticity: A Convergence of Mechanisms. *Neuropsychopharmacology*, 33(1), 88-109.

Slide 49: Antidepressants



Read the categories and examples of antidepressants on this and the next slide. It may be useful to reference the handout and note that this slide lists generic names first, followed by brand names.




IMAGE CREDITS:

Fotolia, purchased images, 2016

Antidepressants Cont'd

- **DNRI**
 - Bupropion (Wellbutrin)
- **TCA**s
 - Nortriptyline (Pamelor)
 - Clomipramine (Anafranil)
 - Amitriptyline (Elavil)
 - Desipramine (Norpramin)
- **MAOIs**
 - Phenylzine (Nardil)
 - Tranylcypromine (Parnate)



Slide 50: Antidepressants Cont'd



Read the categories and examples of antidepressants on this and the next slide. It may be useful to reference the handout and note that this slide lists generic names first, followed by brand names.



IMAGE CREDITS:

Fotolia, purchased image, 2017

Antidepressants: Complex Medicines

Known mechanisms through which antidepressants exert their actions:

- Increase in monoamines (neurotransmitters dopamine, noradrenaline and serotonin)
- Increase in BDNF (brain-derived neurotrophic factor)
- Decrease in CRH (corticotropin releasing hormone)
- Increase of birth of neurons (neurogenesis) in hippocampus

SOURCE: Grimonprez, Raedt, Baeken, Boon & Vervaeke, 2015

Slide 51: Antidepressants: Complex Medicines

Antidepressants are complex medications and exert effects in a number of ways. They increase the monoamine neurotransmitters. They also increase BDNF (BDNF acts on neurons in the Central Nervous System and helps to encouraged differentiation and growth of new neurons in areas important to learning, memory, and thinking).

(Notes for Slide 51, continued)

Slide 51: Antidepressants: Complex Medicines

They also reduce corticotropin releasing hormone, which is involved in the stress response, and increase the generation of new neurons in the hippocampus (regulates emotion and memory).



REFERENCE:

Grimonprez, A., Raedt, R., Baeken, C., Boon, P., & Vonck, K. (2015). The antidepressant mechanism of action of vagus nerve stimulation: Evidence from preclinical studies. *Neuroscience & Biobehavioral Reviews*, 56, 26-34.


Slide 52: All antidepressants (except MAO inhibitors) block monoamine transporter proteins

Blocking monoamine transporter proteins reduces the “recycling” of the neurotransmitters by the sending neuron, which keeps more of them in the synapse, effectively increasing the amount of the neurotransmitter.

All antidepressants (except MAO inhibitors) block monoamine transporter proteins

- Serotonin Transporter(SERT)
- Norepinephrine Transporter(NET)
- Dopamine Transporter(DAT)

This keeps more of the neurotransmitter in the synapse, thereby facilitating neurotransmitter (such as serotonin) mechanisms



SOURCE: Feighner, 1999; Taylor, Pickett, Devi & Gomes, 2010

(Notes for Slide 52, continued)

Slide 52: All antidepressants (except MAO inhibitors) block monoamine transporter proteins



REFERENCES:

Feighner, J.P. (1999) Mechanism of action of antidepressant medications. *The Journal of Clinical Psychiatry*, 60(4), 4-13.

Taylor, C., Fricker, A.D., Devi, L.A., & Gomes, I. (2005). Mechanism of action of antidepressants: from neurotransmitter systems to signaling pathways. *Cellular Signaling*, 17(5), 549-557.



IMAGE CREDITS:

National Institute on Drug Abuse,
retrieved from:

<https://d14rmgtrwzf5a.cloudfront.net/sites/default/files/eslide9.gif>, 2007

Antidepressant Use

- Antidepressant use among Americans is skyrocketing
- Adults in the U.S. consumed four times more antidepressants in the late 2000's than they did in the early 1990's
- As the third most frequently taken medication in the U.S., researchers estimate that 8 to 10 percent of the population is taking an antidepressant
- Spike does not necessarily signify a depression epidemic
- Through the early 2000's pharmaceutical companies were aggressively testing selective serotonin reuptake inhibitors (SSRIs), the dominant class of depression drug, for a variety of disorders

SOURCE: CDC, 2011

53

Slide 53: Antidepressant Use

Pharmaceutical companies have tested antidepressants for a variety of disorders such as OCD, bulimia nervosa, panic disorder, social phobia, premenstrual dysphoric disorder, PTSD, gen anxiety, etc. These will be detailed on the slides that follow.



REFERENCES:

Calderone, J. (2014). The rise of all-purpose antidepressants. Scientific American online:

<https://www.scientificamerican.com/article/the-rise-of-all-purpose-antidepressants/>, accessed on 2/14/17.

Pratt, L.A., Brody, D.J., Gu, Q. (2011) Antidepressant use in persons aged 12 and over: United States, 2005–2008. NCHS data brief, no 76. Hyattsville, MD: National Center for Health Statistics.

Selective Serotonin Reuptake Inhibitors (SSRIs)

- Agents in this class: fluoxetine, paroxetine, sertraline, fluvoxamine, citalopram, and escitalopram
- Fluvoxamine is not FDA-approved for depression. It was approved for social phobia and OCD. In other countries it is being used for depression (or off-label in US).
- Three come in extended-release form: fluoxetine, paroxetine, fluvoxamine.
- All are available as generics

Slide 54: Selective Serotonin Reuptake Inhibitors (SSRIs)

The medications listed are considered SSRI (Selective Serotonin Reuptake Inhibitors) and are FDA-approved for treatment of depression; the exception is fluvoxamine which is approved for social phobia and OCD. Three of the medications come in extended-release forms requiring reduced frequency of dosing; all are available as generics which are typically more cost-effective for patients.

Additional information for trainers:

Use the included handout to encourage participants to cross-reference the generic names as presented with their brand names if that is the name they're more familiar with in their work.

Fluoxetine → Prozac

Paroxetine → Paxil

Sertraline → Zoloft


Fluvoxamine → Luvox

Citalopram → Celexa

Escitalopram → Lexapro

SSRIs Overview

- **Efficacy** (FDA-approved) for:
 - Major Depressive Disorder
 - OCD
 - Social Phobia
 - PTSD
 - Bulimia
 - Generalized Anxiety Disorder
 - Premenstrual Dysphoric Disorder
- **Side Effects:** GI, decreased libido, delayed orgasm, headaches and insomnia/somnolence, anxiety (usually transient)
- **Other risks:** switch to mania, suicidal ideation (black box warning), serotonin syndrome



55

Slide 55: SSRIs Overview

SSRI's are FDA-approved for the listed conditions. The side effects presented are some of the potential Black Box warnings included for these medications, suicide in particular. Serotonin syndrome symptoms include high body temperature, nausea, vomiting, diarrhea, shaking and can result from administration of a serotonin medication.



IMAGE CREDIT:

Fotolia, purchased image, 2017

Serotonin Norepinephrine Reuptake Inhibitors (SNRIs)

- **Four agents:** venlafaxine, desvenlafaxine, duloxetine, milnacipran
- **Efficacy** (FDA-approved) for:
 - MDD
 - GAD
 - Social Phobia
 - Neuropathic pain
 - Fibromyalgia
- **Off label uses:**
 - ADHD
 - Urinary incontinence
 - Vasomotor symptoms associated with menopause



56

Slide 56: Serotonin Norepinephrine Reuptake Inhibitors (SNRIs)

SNRI's increase both serotonin and norepinephrine and are FDA-approved for the listed conditions. "Off-label use" means that the medication is not FDA-approved to treat a condition, but that physicians sometimes use it for that condition anyway (usually if the standard treatments have been ineffective).

Additional information for trainers:

MDD-Major Depressive Disorder

GAD-Generalized Anxiety Disorder

(Notes for Slide 56, continued)

Serotonin Antagonist/Reuptake Inhibitors (SARIs)

- **Two agents:** trazodone, nefazodone
- Both have **FDA indication** for MDD but trazodone mostly prescribed for insomnia (not very effective for depression)
- **Off label use:**
 - anxiety
 - Insomnia
 - PTSD
- **Adverse effects:** liver damage; if a quarter of a million patients were taking nefazodone for a year, one patient would be expected to develop liver damage

Slide 56: Serotonin Norepinephrine Reuptake Inhibitors (SNRIs)

Use the included handout to encourage participants to cross-reference the generic names as presented with their brand names if that is the name they're more familiar with in their work.

Venlafaxine → Effexor

Desvenlafaxine → Pristiq

Duloxetine → Cymbalta

Milnacipran → Savella



IMAGE CREDIT:

Fotolia, purchased image, 2017

Slide 57: Serotonin Antagonist/Reuptake Inhibitors (SARIs)

SARI's reduces one type of serotonin and increases another. Trazadone was originally approved for major depression, but is today primarily prescribed for insomnia related to depression.

Additional information for trainers:

There are different categories of the endogenous serotonin neurotransmitter; the two that are implicated in the mechanism of action for SARIs are:

(Notes for Slide 57, continued)

Tricyclic Antidepressants (TCA)

- **Efficacy:** Second or third line agents for MDD, Panic, OCD, pain symptoms, migraines, enuresis
- **Side Effects:** dry mouth, urinary retention, constipation, blurred vision, confusion, weight gain, sedation, sexual dysfunction, drop in blood pressure, tachycardia and cardiac abnormalities.
- **Drug interactions:**
 - Cimetidine (acid reliever) can increase effects of TCA
 - Clonidine – severe increase in blood pressure, stroke
 - Oral contraceptives – increase TCA effects
 - SSRIs increase TCA effects
 - Quetiapine – increase in arrhythmias

MAO Inhibitors (MAOI)

- **Efficacy:** Third line agents for MDD, second line for Parkinson's disease (selegiline)
- **FDA indications:** treatment-resistant depression
- Selegiline doses used for Parkinson's disease (5-10 mg a day) have a low risk for hypertensive crises
 - Unfortunately, for the treatment of depression higher doses (40-60 mg a day) are needed.
 - At these high doses, the risk for hypertensive crises is high.

Slide 57: Serotonin Antagonist/ Reuptake Inhibitors (SARIs)

5HT1A – receptor that binds endogenous serotonin

5HT2A – main excitatory subtype for serotonin (may also play an inhibitory role in orbitofrontal cortex and visual cortex)

Slide 58: Tricyclic Antidepressants (TCA)

The tricyclic antidepressants (TCA's) were the original antidepressants, but are not considered "first line" treatments for depression today, mainly because of their many side effects and drug interactions. Usually SSRI's are tried first, and if several SSRI's are ineffective for a particular patient then a TCA might be tried.

Slide 59: MAO Inhibitors (MAOI)

Monoamine Oxidase Inhibitors (MAOI's) are older antidepressants, and like the TCA's are no longer considered first-line medications for depression, again due to some of their side effects. At the doses required to treat depression, they often cause issues with high blood pressure.

Treatment-Resistant Depression

- Most recent research studies have defined TRD as the existence of ongoing depressive mood symptoms in an adherent patient, following a minimum of two adequate trials to different antidepressants without the successful resolution or a significant improvement of major depressive symptoms.
- Medication switching and medication augmentation are first steps in addressing TRD – talk to a physician!

SOURCE: Smith, 2013

60

Slide 60: Treatment-Resistant Depression



Read the explanation of treatment-resistant depression. Different people respond to medications differently and adjustments are often needed – this is part of the treatment process. Always consult with the prescriber when it appears a patient/client has treatment-resistant depression.

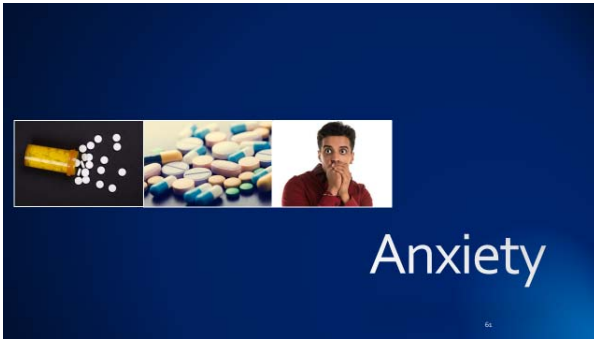
Additional information for trainers:

Another identified treatment recommendation for treatment resistant depression is electroconvulsive therapy under general anesthesia in which electric currents are administered through the brain, changing brain chemistry in a way that relieves symptoms of severe depression.



REFERENCE:

Smith, D.F. (2013). Quest for Biomarkers of Treatment-Resistant Depression: Shifting the Paradigm Toward Risk. *Frontiers in Psychiatry, 4*, 57.



Slide 61: Anxiety

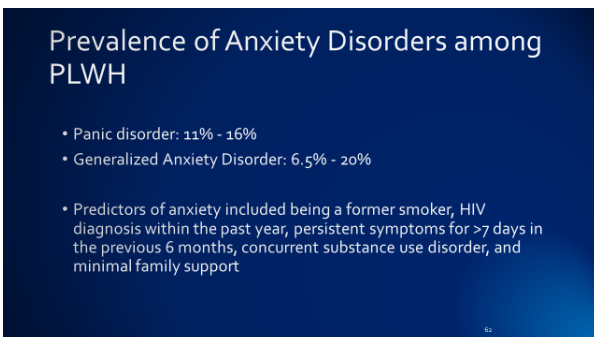


This section will detail anxiety prevalence, mechanisms of anxiety and medications used to treat anxiety.



IMAGE CREDIT:

Fotolia, purchased images, 2017



Slide 62: Prevalence of Anxiety Disorders among PLWH

The prevalence of different diagnostic subtypes of anxiety can vary. Panic disorder among PLWH is approximately 11-16% while generalized anxiety disorder is between 6.5% and 20%. Prevalence of anxiety disorders in PLWH are several times higher than they are among non-HIV infected individuals.

Additional information for trainers: The 12-month prevalence of panic disorder among the general population of the United States is approximately 2.7%; the 12-month prevalence of generalized anxiety disorder among the general population in the United States is 3.1%.

(Notes for Slide 62, continued)

**Medications to Treat Anxiety:
Antidepressants**

- SSRIs such as fluoxetine, sertraline, escitalopram, paroxetine, and citalopram are commonly prescribed for panic disorder, OCD, PTSD, and social anxiety disorder.
- SNRI venlafaxine is commonly used to treat GAD
 - antidepressant bupropion is also sometimes used
- Some tricyclic antidepressants work well for anxiety (imipramine is prescribed for panic disorder and GAD; clomipramine is used to treat OCD)
- MAOIs are also used for anxiety disorders

69

Slide 62: Prevalence of Anxiety Disorders among PLWH

The prevalence of anxiety disorders among PLWH is significantly higher than the general population, indicating that PLWH are disproportionately affected by symptoms of anxiety and anxiety disorders.



REFERENCE:

Chaudhury, S, Bakhla, A, & Saini, R. (2016). Prevalence, impact, and management of depression and anxiety in patients with HIV: a review. *Neurobehavioral HIV Medicine*, 7, 15-30.

Slide 63: Medications to Treat Anxiety: Antidepressants

Antidepressants are often considered first-line treatments for anxiety disorders.

Additional information for trainers:

OCD → Obsessive-Compulsive Disorder

PTSD → Post-Traumatic Stress Disorder

Bupropion → Wellbutrin

Benzodiazepines

- Clonazepam (Klonopin)
- Lorazepam (Ativan)
- Alprazolam (Xanax)
- Diazepam (Valium)



Slide 64: Benzodiazepines



Read the categories and examples of benzodiazepines on this slide. It may be useful to reference the handout and note that this slide lists generic names first, followed by brand names.

Additional information for trainers:

Benzodiazepines are often used as short-term anxiety treatments. Long-term use is discouraged because of the potential for dependence and abuse.



IMAGE CREDIT:

Fotolia, purchased image, 2017

Medications to Treat Anxiety: Benzodiazepines

- Start working more quickly than antidepressants
- People can build a tolerance to benzodiazepines if they are taken over a long period of time and may need higher and higher doses to achieve the same effect
- If people suddenly stop taking benzodiazepines, they may get withdrawal symptoms, their anxiety may return or they may have seizures

65

Slide 65: Medications to Treat Anxiety: Benzodiazepines



Read the bullet points on the slide. Emphasize that tolerance to benzodiazepines can result from on-going use if taken in higher doses or over a longer period of time than recommended or intended. This tolerance can result in severe withdrawal symptoms such as seizures that may present critical risk to an individual's health.

Benzodiazepines

- Benzodiazepines work by increasing the efficiency of a natural brain chemical, GABA, to decrease the excitability of neurons. This reduces the communication between neurons and, therefore, has a calming effect on many of the functions of the brain
- Increasing serotonin function decreases anxiety



66

Slide 66: Benzodiazepines

Benzodiazepines influence a naturally occurring brain chemical to reduce the excitability of neurons. While this decreases anxiety and has a calming effect, side effects (such as sedation or impacts to short-term memory) may result. GABA – gamma amino butyric acid – the main inhibitory neurotransmitter.

(Notes for Slide 66, continued)

Sedative-Hypnotics

- Used to treat anxiety and sleep disorders
- Mechanism: enhances GABA
 - slows brain function and causes sleepiness
- Barbiturates
 - Phenobarbital
 - Pentobarbital



Slide 66: Benzodiazepines

Additional information for trainers:

Benzodiazepines may produce an anxiolytic effect which will inhibit the activation of the amygdala to reduce feelings of anxiety and physiological responses related to fear and anxiety.

Benzodiazepines also have a hypnotic effect in which drowsiness can occur.



IMAGE CREDIT:

Fotolia, purchased image, 2017

Slide 67: Sedative-Hypnotics

The class of medications called sedative-hypnotics are used in the treatment of anxiety as well as sleep disorders by enhancing the functioning of GABA in the brain. This will cause drowsiness and a general slowing of some brain functions

Additional information for trainers:

Barbiturates are rarely used due to the dosage that can result in overdose being very close in amount to the dosage required for a therapeutic effect.

Overdose symptoms include difficulty thinking, drowsiness or coma, impaired judgment, loss of coordination, slurred speech, respiratory sedation.

(Notes for Slide 67, continued)

Sedative-Hypnotics Cont'd

- Benzodiazepines
- Non-benzo hypnotics
 - Zolpidem (Ambien)
 - Zaleplon (Sonata)
 - Eszopiclone (Lunesta)
- Cross-tolerance with alcohol (GABA related)



68

Slide 67: Sedative-Hypnotics



IMAGE CREDIT:

Fotolia, purchased image, 2016

Slide 68: Sedative-Hypnotics Cont'd

Non-benzodiazepine sedative-hypnotics include zolpidem, zaleplon, and eszopiclone. The sedative-hypnotics have cross-tolerance with alcohol, meaning that if you have a high tolerance for alcohol, you will also have a high tolerance for sedative-hypnotics (you will need higher doses in order for it to be effective). However this also makes it easier to overdose if you combine them.



IMAGE CREDIT:

Fotolia, purchased image, 2017

Sedative-Hypnotic Effects

- Sedation
- Slurred speech
- Reduced coordination
- Unsteady gait
- Impaired attention or memory
- Stupor or coma
- Overdose risk increased with barbiturates or in combination with other sedatives, including opioids and alcohol

69

Other Sedative-Hypnotic Risks

- No significant adverse medical consequences of long-term use
- Amnesia – difficulty with recent memory
- Tolerance, physiological dependence, addiction



70

Slide 69: Sedative-Hypnotic Effects

Emphasize that significant health risk is present in overdose. Toxicity/overdose may result in unsteady gait, impaired gag reflex, and blurry vision, obtundation (altered level of consciousness). Patients should be cautioned to never combine sedative-hypnotics with opioids or alcohol.

Slide 70: Other Sedative-Hypnotic Risks

There is no indicator that there is any long-term risk to individuals' physical health with on-going use of sedative-hypnotics, however, there can be impacts on an individual's memory including impairments in short-term or recent memories. This can cause difficulty in cognitive functioning or mental health functioning. It is also important to stress that patients/clients can develop tolerance, physical dependence, and addiction to sedative-hypnotics which makes long-term use risky.



IMAGE CREDIT:

Fotolia, purchased image, 2017



Slide 71: PTSD



This section will detail PTSD/trauma prevalence, mechanisms of PTSD/trauma and medications used to treat PTSD.



IMAGE CREDIT:

Fotolia, purchased images, 2017

Prevalence of PTSD in the General Population

- PTSD: 8.7%
- Predictors of PTSD include childhood emotional problems by the age of 6, prior mental disorder, lower socioeconomic status, lower education, exposure to prior trauma, childhood adversity, cultural characteristics, lower intelligence, family psychiatric history, and racial/ethnic status
- Characterized by anxiety, re-experiencing, hyperarousal, avoidance, changes to mood/cognition

Slide 72: Prevalence of PTSD in the General Population

The prevalence PTSD in the general population is 8.7%. There are a number of additional predictors of PTSD that can include childhood exposure to adverse experiences, emotional problems before the age of 6, previous mental disorder, lower socioeconomic status, and a family history of psychiatric disorders.

Additional information for trainers:

Trauma-related disorders are summarized by PTSD on this particular slide, but there is a range of possible types of traumatic experiences across the lifespan with varying effects on the individual who experienced that particular event.

(Notes for Slide 72, continued)

Slide 72: Prevalence of PTSD in the General Population

Adverse childhood experiences early in life (before the age of 18) can have developmental, mental and behavioral impacts across the lifespan. While the impact of these events (such as household dysfunction, sexual/emotional/physical abuse, and parental substance use) on the individual's on-going functioning is well-documented, the resulting symptoms of these experiences is often diagnosed as ADHD or other mood disorders due to the sub-threshold diagnostic features of these types of stressors. Recognize as well that traumatic experiences may not be the traditionally conceptualized "accident, combat, natural disaster" traumas. While only 9% of individuals experience symptoms meeting the criteria for PTSD, research places the amount of individuals who may have experienced a traumatic event at some point in their lives as high as 90%.



REFERENCES:

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5*. Washington, D.C: American Psychiatric Association.

(Notes for Slide 72, continued)

Selective Serotonin Reuptake Inhibitors (SSRIs)

- SSRIs have the strongest empirical evidence for reducing PTSD symptoms with RCTs, and they are the preferred initial class of medications used in PTSD treatment
- The SSRIs are the only medications approved by the FDA for PTSD.
 - Sertraline 50 mg to 200 mg daily
 - Paroxetine 20 to 60 mg daily
 - Fluoxetine 20 mg to 60 mg daily (not currently FDA approved)

Clinicians guide to medications for PTSD, VA.gov 73

Slide 72: Prevalence of PTSD in the General Population

Kilpatrick, D.G., Resnick, H.S., Milanak, M.E., Miller, M.W., Keyes, K.M., & Friedman, M.J. (2013). National Estimates of Exposure to Traumatic Events and PTSD Prevalence Using *DSM-IV and DSM-5* Criteria. *Journal of Traumatic Stress, 26*(5), 537-547.

Slide 73: Selective Serotonin Reuptake Inhibitors (SSRIs)

SSRI's have the most data from randomized clinical trials (RCT's) to support the treatment of PTSD. The recommended dosages are from the VA's clinician's guide to medications for PTSD. Currently, SSRI's are the only medications that are approved for the treatment of PTSD by the Food and Drug Administration.



REFERENCE:

Jeffreys, M. (2017, March 30). Clinician's Guide to Medications for PTSD. Retrieved from <https://www.ptsd.va.gov/professional/treatment/overview/clinicians-guide-to-medications-for-ptsd.asp>.

Other antidepressants for PTSD

- Affect the balance of serotonergic and noradrenergic neurotransmission or which alter serotonin neurotransmission
 - Venlafaxine 75 mg to 300 mg daily
 - Nefazodone 200 mg to 600 mg daily
 - Trazodone 50 to 200 mg (promotes sleep)



Clinicians guide to medications for PTSD, VA.gov 74

Slide 74: Other antidepressants for PTSD

Venlafaxine, nefazodone, and trazodone either alter the transmission of serotonin or affect the balance between serotonin and norepinephrine.



IMAGE CREDIT:

Fotolia, purchased image, 2017

Mood stabilizers for PTSD

- Anticonvulsants or anti-epileptic medicines
- Affect the balance between the excitatory neurotransmitter glutamate and the inhibitory neurotransmitter gamma-aminobutyric acid (GABA)
 - Carbamazepine
 - Divalproex
 - Lamotrigine
 - Topiramate (also helpful in reducing alcohol consumption)

Clinicians guide to medications for PTSD, VA.gov 75

Slide 75: Mood stabilizers for PTSD

While SSRI's are currently the only medications that are approved by the FDA for PTSD treatment, there is evidence that other medications such as antidepressants and mood stabilizers can be used for the purpose of reducing some of the symptoms related to PTSD. Anticonvulsants or anti-epileptic medicines are also used in the treatment of PTSD. Mood stabilizers are also used to treat PTSD.

Additional information for trainers:

“Off-label” use of a medication means use for a purpose other than approved by the FDA for an identified condition; this is a common, legal, and safe practice in most cases.

(Notes for Slide 75, continued)

Atypical antipsychotics for PTSD

- Antipsychotics reduce psychotic symptoms in PTSD patients but evidence is lacking for treatment of core symptoms
- Atypical antipsychotics are not recommended as monotherapy for PTSD

Clinicians guide to medications for PTSD, VA.gov 76

Other medications for PTSD

Second-line treatments

- Prazosin – helpful to reduce nightmares
- Tricyclic Antidepressants (such as imipramine)
- Monoamine Oxidase Inhibitors (MAOIs) (such as phenelzine)
- Buspirone and beta blockers (adjunct to treat hyperarousal)

77

Slide 75: Mood stabilizers for PTSD

Carbamazepine → Tegretol

Divalproex → Depakote

Lamotrigine → Lamictal

Topiramate → Topimax

Slide 76: Atypical antipsychotics for PTSD

Antipsychotic medications are used to treat PTSD patients with psychotic symptoms, but there is little evidence that antipsychotics treat the core symptoms of PTSD. It is not recommended that a patient with PTSD be treated ONLY with an antipsychotic medication.

Slide 77: Other medications for PTSD

These are considered to be “second-line” treatments for PTSD, meaning they should be considered only once the “first line” medications are determined to be unsuccessful or if there is a reason (substance use, physical health concerns) that a frontline medication should not be administered to an individual. This determination should be made by the prescribing physician.

(Notes for Slide 77, continued)

Benzodiazepines and PTSD

- Potentially habit forming
- Use with caution
- Limited studies have not shown them to be useful in treating the core PTSD symptoms
 - Lorazepam
 - Clonazepam
 - Alprazolam
- Short-term use only (e.g., 5 days) with frequent re-evaluation for side effects

78

Slide 77: Other medications for PTSD

Additional information for trainers:

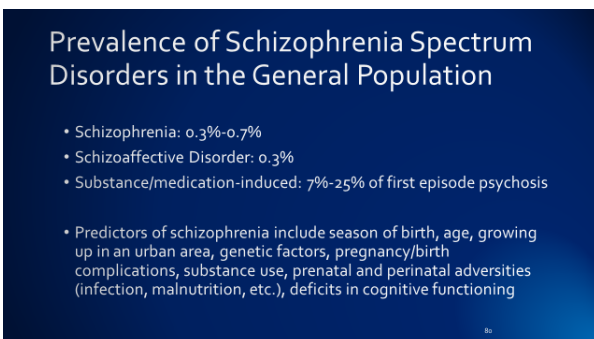
Prazosin → Minipress

Buspirone → Buspar

Slide 78: Benzodiazepines and PTSD

Benzodiazepines can provide an opportunity to stabilize an individual short-term and transition them to longer-term treatment approaches. There are warnings and cautions that providers must be aware of when a patient is taking benzodiazepines. Much like in the treatment of anxiety disorders, benzodiazepines in the treatment of PTSD can be habit-forming and should be used with caution and continuous monitoring and oversight by members of the treatment team. While stabilization of symptoms can result, benzodiazepines have been shown to not have any significant impact in the treatment of core PTSD symptoms, meaning that providers should be cognizant of the need for continuing PTSD-focused interventions if benzodiazepine use allows for stabilization of some symptoms.

(Notes for Slide 78, continued)



Slide 78: Benzodiazepines and PTSD

Additional information for trainers:

Lorazepam → Ativan

Clonazepam → Klonopin

Alprazolam → Xanax

Slide 79: Psychosis



This section will detail psychosis prevalence, mechanisms of psychosis and medications used to treat psychosis.



IMAGE CREDIT:

Fotolia, purchased images, 2017

Slide 80: Prevalence of Schizophrenia Spectrum Disorders in the General Population

The prevalence of different diagnostic subtypes of psychotic spectrum disorders can vary. Schizophrenia among the general population is approximately 0.3-0.7% while schizoaffective disorder is between approximately 0.3%.

(Notes for Slide 80, continued)

Slide 80: Prevalence of Schizophrenia Spectrum Disorders in the General Population

The incidence of substance or medication-induced first episode psychosis is approximately 7-25%, indicating that it is more likely that an individual will experience their first episode of psychosis as a result of medication or substance use.



REFERENCE:

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5*. Washington, D.C: American Psychiatric Association.

Slide 81: Psychosis

In consideration of a diagnosis of schizophrenia or other psychotic disorder, providers should recognize how rare a diagnosis of schizophrenia is among the general population, and, depending on the organization and individual works in, differential diagnoses of other mental health disorders or even organic causes of symptoms should be ruled out.

Psychosis

- There can be a substantial overlap between symptoms of psychosis and organic syndromes related directly to the HIV disease.
- Pneumonia, dehydration and electrolyte disturbance, fever and infections may be associated with psychosis.
- Chronic illnesses like HIV tend to lead to greater morbidity & mortality when co-occurring with schizophrenia because individuals are less adherent to medical regimens.

(Notes for Slide 81, continued)

Slide 81: Psychosis

Symptoms of psychosis can be mimicked by some of the organic disturbances of HIV. Physical symptoms of pneumonia, dehydration, electrolyte disturbance, fever and infections can be associated with HIV or may be a result of lack of proper diet and self-care that can be a symptom of the cognitive decline associated with psychotic symptoms. Individuals diagnosed with HIV and psychosis can be at greater risk of morbidity and mortality due to difficulty maintaining adherence to regular medication regimens.



REFERENCE:

A.P.A. H.O.P.E. (2010) Training Module 3. American Psychological Association, p. 48.

The Dopamine Hypothesis

Schizophrenia results from excess activity of dopamine neurotransmission:

- All antipsychotic drugs block dopamine receptors
- Higher levels of dopamine receptors measured in brains of individuals with schizophrenia
- Stimulant drugs which act through dopamine can produce schizophrenia-like behaviors (e.g. amphetamines)

82

Slide 82: The Dopamine Hypothesis

The dopamine hypothesis of schizophrenia states that schizophrenia is caused by excessive dopamine activity in the brain. Measurements of the amount of dopamine in the brains of individuals with schizophrenia has shown higher amounts than in individuals who do not have schizophrenia. This seems to be related to the way in which stimulant drugs (which affect the dopaminergic system of the brain) can produce schizophrenia-like symptoms such as hallucinations or delusions. Antipsychotic medications block dopamine receptors in an attempt to reduce this activity.

Antipsychotic Agents

- Antipsychotic drugs are able to reduce psychotic symptoms in a wide variety of conditions, including schizophrenia, bipolar disorder, psychotic depression and drug induced psychosis.
- They have also been termed neuroleptics, because they suppress motor activity and emotionality.
**** These drugs are not a cure ****
- Psychotic diseases are life long and it is preferable to prevent the psychotic episodes than to treat them.

83

Slide 83: Antipsychotic Agents

While antipsychotic medications reduce psychotic symptoms, they are not considered to be a cure for psychosis. One of the difficulties in treating individuals with psychosis is that they often discontinue their medication when they feel “normal”, but then they eventually have another psychotic episode because they aren’t taking medication.

Antipsychotics/Neuroleptics

<p>Typicals</p> <ul style="list-style-type: none"> • Chlorpromazine (Thorazine) • Haloperidol (Haldol) • Perphenazine (Trilafon) • Fluphenazine (Prolixin) 	<p>Atypicals</p> <ul style="list-style-type: none"> • Olanzapine (Zyprexa) • Aripiprazole (Abilify) • Risperidone (Risperdal) • Ziprasidone (Geodon) • Clozapine (Clozaril) • Lurasidone (Latuda) • Quetiapine (Seroquel)
---	---



Slide 84: Antipsychotics/Neuroleptics



Read the categories and examples of antipsychotics/neuroleptics on this slide. It may be useful to reference the handout and note that this slide lists generic names first, followed by brand names.



IMAGE CREDIT:

Fotolia, purchased image, 2017

Antipsychotics/Neuroleptics

- Distinction between 'typical' and 'atypical' groups is not clearly defined, but rests on:
 - Incidence of motor activity side-effects (less in 'atypical' group)
 - Efficacy in treatment-resistant group of patients
 - Efficacy against negative symptoms.

Slide 85: Antipsychotic/Neuroleptics

The “atypical” antipsychotics generally have fewer side effects than the older, “typical” antipsychotics. They are also generally more effective with treatment-resistant individuals (patients who have tried one or more “typical” medications with limited or no success) and against negative symptoms such as flat affect, anhedonia (loss of the ability to experience pleasure), alogia (poverty of speech-brief, empty replies to questions), and avolition (inability to initiate and persist in goal-directed activities).

Antipsychotics and HIV

- Clozapine is an effective antipsychotic for treatment-resistant schizophrenia
- One possible side effect of clozapine is a severe reduction in white blood cells that could lead to increased infection (leukopenia)
- Poses treatment issues for patients with HIV-related white blood cell loss. Leukopenia may be due to bone marrow toxicity of HIV, medications used to treat HIV, or both
- Limited research about effective administration despite high rates of co-occurrence between SMI and HIV

SOURCE: Elmore et al, 2016

85

Slide 86: Antipsychotics and HIV

Another medication useful for treatment-resistant psychosis is clozapine. However, a side effect is agranulocytosis (a severe lack of one type of infection-fighting white blood cells), which is especially problematic for people with compromised immune functioning. While clozapine is recognized as an effective antipsychotic for the treatment of schizophrenia, there is limited research about the way in which it can be effectively administered to individuals with co-occurring SMI and HIV, despite high rates of the combination of impairments.



REFERENCE:

Elmore, H., Lewin, J., Bradley, M., & Sinkman, A. (2016). Use of Granulocyte Colony-Stimulating Factor in a Neutropenic HIV-Infected Patient on Clozapine. *Psychosomatics*, 57, 651-654.



Slide 87: ADHD

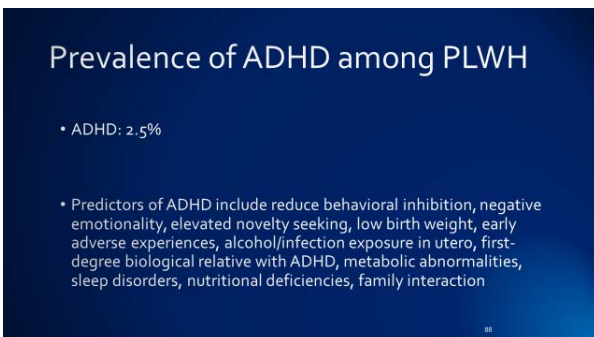


This section will detail ADHD prevalence, mechanisms of ADHD and medications used to treat ADHD.



IMAGE CREDIT:

Fotolia, purchased images, 2017



Slide 88: Prevalence of ADHD among PLWH

The prevalence of ADHD among individuals with HIV is 2.5%. The listed factors are correlated with ADHD. One indicator of risk of ADHD is exposure in utero to alcohol or infection.

Additional information for trainers:

The 12-month prevalence of ADHD among adults in the general population of the United States is approximately 4.1%.

(Notes for Slide 88, continued)

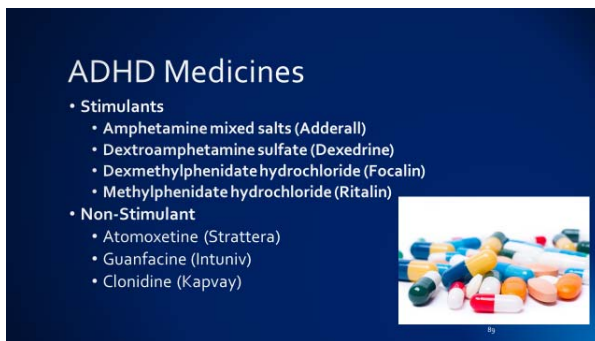
Slide 88: Prevalence of ADHD among PLWH



REFERENCES:


American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5*. Washington, D.C: American Psychiatric Association.

Chaudhury, S, Bakhla, A, & Saini, R. (2016). Prevalence, impact, and management of depression and anxiety in patients with HIV: a review. *Neurobehavioral HIV Medicine*, 7, 15-30.



ADHD Medicines

- **Stimulants**
 - Amphetamine mixed salts (Adderall)
 - Dextroamphetamine sulfate (Dexedrine)
 - Dexmethylphenidate hydrochloride (Focalin)
 - Methylphenidate hydrochloride (Ritalin)
- **Non-Stimulant**
 - Atomoxetine (Strattera)
 - Guanfacine (Intuniv)
 - Clonidine (Kapvay)



Slide 89: ADHD Medicines



Read the two categories of ADHD medicines and examples of stimulants and non-stimulant medicines on this slide. It may be useful to reference the handout and note that this slide lists generic names first, followed by brand names.

(Notes for Slide 89, continued)

ADHD Stimulants

- **Indications:**
 - ADHD treatment (amphetamine, methylphenidate)
 - Narcolepsy (amphetamine)
- **Contraindications:**
 - Cardiovascular disease
 - Hypertension
 - Glaucoma
- **Warnings:** Sudden/serious cardiac events(children and adults), sudden death, stroke, exacerbated psychosis, bipolar illness, aggression, suppression of growth (children), seizures, exacerbation of Tourette's, increased suicidal ideation

Slide 89: ADHD Medicines



IMAGE CREDIT:

Fotolia, purchased image, 2017

Slide 90: ADHD Stimulants

Stimulant medications are FDA-approved to treat ADHD and narcolepsy. They are not advised to be used in patients who have cardiovascular disease, hypertension, or glaucoma. The warnings from the medication labels are listed.

Additional information for trainers:

Related to the suppression of growth in children – published data are currently inadequate to determine whether chronic use of amphetamines may cause a suppression of growth; however, based on existing research, it is likely that this may be one of the side effects of ADHD stimulant use.

ADHD Mechanism of Action

- Amphetamines have a high potential for abuse
- The mode of therapeutic action of amphetamines in ADHD treatment is unknown
- Believed that amphetamines block the reuptake of norepinephrine and dopamine
- Increased levels of dopamine and norepinephrine are thought to have a calming effect on individuals with ADHD
- Risk in long-term use of amphetamine (Adderall) has not been thoroughly evaluated

91

Slide 91: ADHD Mechanism of Action

The exact mechanism by which stimulant medications treat ADHD is unknown; however, it is believed that they increase levels of dopamine and norepinephrine. In people without ADHD, this produces high energy and euphoria, but in people with ADHD it has the opposite, a calming effect.

Slide 92: Bipolar Disorder



This section will detail bipolar disorder prevalence, mechanisms of bipolar disorder and medications used to treat bipolar disorder.



IMAGE CREDIT:

Fotolia, purchased images, 2017



92

Prevalence of Bipolar Disorders in the General Population

- Bipolar I: 0.6%
- Bipolar II: 0.8%
- Predictors of bipolar include higher socioeconomic status, separated/divorced/widowed individuals, family history of bipolar disorder, genetics

99

Slide 93: Prevalence of Bipolar Disorders in the General Population

The prevalence of bipolar I disorder in the general population is 0.6%. The prevalence of bipolar II disorder is slightly higher at 0.8%. The listed factors are correlated with bipolar disorder. One of the main indicators of risk for development of bipolar disorder is genetic.

Additional information for trainers:

The difference between Bipolar I and Bipolar II diagnoses is based on symptom severity and duration. In order to meet the criteria for Bipolar I, practitioners should consider whether the criteria of a manic episode is met. This criteria is required for a diagnosis of Bipolar I. Manic episodes are characterized by elevated mood or irritability, similar to a hypomanic episode, but with increased severity lasting at least 1 week that may result in hospitalization.



REFERENCE:

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: DSM-5*. Washington, D.C: American Psychiatric Association.

Bipolar Disorder

- BD is highly heritable, with estimates of over 80% from twin studies
- Understanding of its genetic basis, development, and disease process have remained elusive
- Emotional processing region (amygdala) is smaller in children with Bipolar Disorder
 - unclear whether this is an abnormality that appears early in development, or only after the onset of early symptoms of mania and/or depression
- Executive functioning (frontal cortex)
 - Shrinks in size when bipolar disorder is allowed to progress

Slide 94: Bipolar Disorder

There is a strong genetic component to bipolar disorder. The amygdala, which plays a role in emotion regulation and learning, has been found to be smaller in children with bipolar disorder, but it is unclear if it actually causes bipolar or results from it. The frontal cortex has been found to be smaller in people with bipolar disorder. This has implications for executive functioning, reasoning, decision-making, and judgment.

Additional information for trainers:

Executive functioning and the frontal cortex are responsible for planning, focusing, managing tasks, inhibitory control – all skills that clients attempt to learn or develop in treatment. In bipolar disorder, difficulty with emotional processing and lack of inhibitory control/planning resulting from changes to the frontal cortex are similar to neurological changes that result from on-going substance use.

(Notes for Slide 94, continued)

Mood stabilizers

- Lithium
- Valproic acid (Depakote)
- Carbamazepine (Tegretol)
- Lamotrigine (Lamictal)
- Atypical neuroleptics
 - Olanzapine (Zyprexa)
 - Aripiprazole (Abilify)
 - Risperidone (Risperdal)
 - Ziprasidone (Geodon)
 - Quetiapine (Seroquel)



95

Slide 94: Bipolar Disorder



REFERENCES:

Garrett, A. & Chang, K. (2008). The role of the amygdala in bipolar disorder development. *Development and Psychopathology, 20(4)*, 1285-1296.

Harrison, P.J., (2016). Molecular neurobiological clues to the pathogenesis of bipolar disorder. *Current Opinion in Neurobiology, 36*, 1-6.

Slide 95: Mood stabilizers

Read the categories of mood stabilizers used in the treatment of bipolar disorder. It may be useful to reference the handout and note that this slide lists generic names first, followed by brand names.

Additional information for trainers:

Mood stabilizers such as lithium and valproic acid are generally the first-line treatments for bipolar disorder, but atypical antipsychotic medications are also used.

(Notes for Slide 95, continued)

Lithium: Mechanism of Action

- Appears to preserve or increase the volume of brain structures involved in emotional regulation (prefrontal cortex, hippocampus and amygdala), possibly reflecting neuroprotective effects
- At a neuronal level, lithium **reduces excitatory** (dopamine and glutamate) but **increases inhibitory** (GABA) neurotransmission;
- Reduces the oxidative stress that occurs with multiple episodes of mania and depression
- Increases protective proteins such as brain-derived neurotrophic factor (BDNF)
- Reduces cell death (apoptotic processes)

Slide 95: Mood stabilizers



IMAGE CREDIT:

Fotolia, purchased image, 2017

Slide 96: Lithium: Mechanism of Action

Lithium is one of the first-line treatments for bipolar disorder and works by changing brain structure and functioning. Lithium seems to be able to preserve or increase the volume of brain structures involved in emotional processing and regulation such as the amygdala and prefrontal cortex (discussed on Slide 94) which may indicate that there are neuroprotective effects of the medication. The mechanism of action of lithium is a reduction of excitatory neurotransmitters dopamine and glutamate and an increase in inhibitory neurotransmitters. Stress that creates imbalances chemically may also be reduced neurologically. Protective proteins that increase neuroplasticity and neuronal growth in the brain are increased by lithium while protecting the brain against further cell death (apoptosis).

(Notes for Slide 96, continued)

Slide 96: Lithium: Mechanism of Action

Additional information for trainers:

Oxidative stress is an imbalance between the production of free radicals and the ability of the body to counteract or detoxify their harmful effects through neutralization by antioxidants. This stress can contribute to the apoptotic process (cell death) in the brain.



REFERENCE:

Malhi, G.S., Tanious, P., Das, P., Coulston, C.M., & Berk, M. (2013). Potential mechanisms of action of lithium in bipolar disorder. *Current understanding. CNS Drugs, 27(2), 135-153.*

Slide 97: Bipolar Disorder: Alternative Therapies

While some clients may report the use of a combination of herbal/vitamin/alternative therapies as having been useful in the treatment of bipolar disorder (i.e., the consumption of antioxidant-rich foods in order to combat oxidation in the brain), there has been limited research conducted on natural/herbal supplements as treatments for bipolar disorder.

Bipolar Disorder: Alternative Therapies

- Limited research conducted on herbal or natural supplements and how they may affect bipolar disorder
- Studying omega-3 fatty acids (most commonly found in fish oil) to measure their usefulness for long-term treatment of bipolar disorder
- Study results have been mixed



SOURCE: NIH, 2016

(Notes for Slide 97, continued)

Slide 97: Bipolar Disorder: Alternative Therapies

Studies examining the effects of omega-3 fatty acids typically found in fish oil and salmon are one of the supplements that have been evaluated to determine whether or not they might be a viable alternative treatment for bipolar disorder. The results have been mixed.



REFERENCE:

The National Institute of Mental Health. (2016, April). Bipolar Disorder. Retrieved from:

http://www.nimh.nih.gov/health/topics/bipolar-disorder/index.shtml#part_145406.



IMAGE CREDIT:

Fotolia, purchased image, 2017



Slide 98: Integrated Treatment Recommendations



Note to participants that at this point in the training, the focus is shifting to building upon understanding of the different medications for categories of disorders to putting together treatment recommendations that would be useful in creating discussions that address need for referral for medication evaluation by a physician or strategies for medication adherence.



Slide 99: Recognizing HIV and Psychiatric Illness



This first subsection of treatment recommendations focuses on being able to recognize and distinguish HIV and psychiatric illness symptoms.



IMAGE CREDIT:

Fotolia, purchased images, 2017

Differential Diagnosis

Comorbid Conditions:

- HIV/AIDS Diagnoses
 - Mental Health Diagnosis
 - Substance Abuse Issues
- Among HIV-positive patients, nearly 50% screened positive for a MH disorder, nearly 40% for illicit drug use (other than marijuana), and more than 12% were drug dependent.

Slide 100: Differential Diagnosis

Summarize previous information presented: prevalence rates for all psychological disorders are significantly higher for PLWH than the general population at nearly 50% with one or more mental health and/or substance-related conditions. These patients are more likely to be non-adherent to medication regimens and have higher rates of morbidity and mortality.

Co-occurring mental health disorders tend to be more prominent in women, racial and ethnic minorities, and among those socially and economically marginalized.



REFERENCES:

Bing, E.G., Burnam, M.A., & Longshore, D. (2001). Psychiatric Disorders and Drug Use Among Human Immunodeficiency Virus-Infected Adults in the United States. *Archives of General Psychiatry*, 58(8), 721-728.

MacPhee, E.R. & Douaihy, A. (2005). Triple Diagnosis: An Overview. *FOCUS: Guide to AIDS Research & Counseling*, 20(3), 5-7.

Depression

- Proportion of HIV+ screened positive for Major Depression was 5 times greater than in general population & higher for women
- Up to 72% of PLWH had depressive symptoms in last year
- Depression is the most common MH reaction to chronic illness based on hopelessness & perceived lack of control
- Depression affects treatment adherence and leads to social isolation, poor diet, vocational impairment, and reduced exercise

Slide 101: Depression

The percentage of PLWH who screened positive for depression was 5 times greater than in the general population and even higher for women. Depression screening and on-going assessment for depression should be integrated into practice at any healthcare facility with the ability to address depressive symptoms among PLWH or refer for treatment. Hopelessness and a lack of control can result from chronic conditions which create potential obstacles for engaging in health-improving behaviors that may affect treatment adherence and medication adherence.



REFERENCES:

Rabkin, J.G. (2008). HIV and depression: 2008 review and update. *Current HIV and AIDS Report*, 5(4), 163-171.

Weatherburn, P., Keogh, P., Reid, D., Dodds, C., Bourne, A., et al., (2009) What do you need? 2007-2008 Findings from a national survey of people with diagnosed HIV. Retrieved from:

www.sigmaresearch.org.uk/files/report2009b.pdf.

Prevalence of Depression

- A recent review article found rates of depression among PLWH ranging from 7.2% to 71.9% and rates of anxiety from 4.5% to 82.3% (Chaudhury, Bakhla, & Saini, 2016)
- Predictors of depression include general stress, dissatisfaction with life situation, poor health, belief that all aspects of life are affected by HIV, ART, non-adherence to medications, history of alcohol abuse, and history of psychiatric treatment

Slide 102: Prevalence of Depression

Prevalence and symptoms vary wildly – it's important to conduct a thorough assessment and coordinate care. The range can account for a number of variables ranging from the focus on clinical symptoms to patient self-report. The importance factor is to consider that depression is related to on-going impacts to health and well-being including general stress, dissatisfaction with life, poorer health, non-adherence to medication and history of alcohol abuse.

Additional information for trainers:

The wide range of prevalence rates can be accounted for in measuring symptoms vs. diagnoses; different diagnostic criteria i.e. DSM vs. ICD; self-report symptom checklists vs. clinician-administered assessments; assessing for current symptoms vs. the past two weeks vs. the past 30 days or lifetime.



REFERENCE:

Chaudhury, S, Bakhla, A, & Saini, R. (2016). Prevalence, impact, and management of depression and anxiety in patients with HIV: a review. *Neurobehavioral HIV Medicine*, 7, 15-30.

Differential Dx for Depression

- "HIV-related conditions which can cause depressive symptoms include CNS disorders such as toxoplasmosis, cryptococcal meningitis, and lymphoma. Male HIV clients with low serum testosterone levels have been found to have significant rates of depressive symptoms."
- So a thorough medical exam to R/O these disorders is crucial before deciding to diagnose with a depressive syndrome.

SOURCE: A.P.A. H.O.P.E. (2010) Training Module 3, p. 40

103

Slide 103: Differential Dx for Depression

As previously mentioned, a number of HIV-related conditions can cause depressive symptoms, so it is important to rule out these physical conditions prior to making a diagnosis of major depression.



REFERENCE:

A.P.A. H.O.P.E. (2010) Training Module 3. American Psychological Association, p. 40.

Other Differential Dx for Depression

- Distinguish from cognitive impairment: more sadness & negative thoughts vs. disorientation or memory loss
- Distinguish from alcohol or stimulant abuse (or possibly opiate withdrawal): a month of sobriety in which patient continues to exhibit depressive symptoms
- Efavirenz (Sustiva), interferon, clonidine, steroids, etc. can all mimic major depression
- Take a thorough drug history

SOURCE: Galda, Truter, Grobler, Kotze & Godman, 2016

104

Slide 104: Other Differential Dx for Depression

Other aspects of differential diagnosis for depression include distinguishing it from cognitive impairment, alcohol or stimulant abuse, and side effects of the listed medications. It is important to take a thorough drug history at intake. In order to distinguish between depression from organic or other cognitive impairment is to note whether there is more sadness and negative cognition/thought versus disorientation and memory loss.

(Notes for Slide 104, continued)

Slide 104: Other Differential Dx for Depression

Taking a thorough history and observing the individual's behaviors and affect in the session can assist in determining this distinction. It can be difficult to distinguish between alcohol or other substance-induced cognitive impairment or sadness; in this situation, once the client has been able to obtain a month of sobriety, the presence of symptoms would most likely indicate on-going depression.



REFERENCE:

Gaida, R., Truter, I., Grobler, C., Kotze, T., & Godman, B. (2016). A review of trials investigating efavirenz-induced neuropsychiatric side effects and the implications. *Expert Review of Anti-infective Therapy*, 14(4), 377-388.

Other Differential Dx for Depression

- Efavirenz (Sustiva) has been noted to cause neuropsychiatric side effects in up to 50% of users
- Efavirenz (Sustiva) causes behavioral symptoms of both depression and anxiety in rats, accompanied by altered monoamine concentrations and levels of GABA and glutamate (Cavalcante, 2017)

105

Slide 105: Other Differential Dx for Depression

Efavirenz, in particular, can cause psychiatric side effects. In animal studies, the administration of efavirenz caused behavioral symptoms of depression and anxiety as well as neurological changes such as monoamine changes.



REFERENCE:

Cavalcante, G., Chaves Filho, A.J., Linhares, M.I., de Carvalho Lima, C.N., et al. (2017). HIV antiretroviral drug Efavirenz induces anxiety-like and depression-like behavior in rats: evaluation of neurotransmitter alterations in the striatum. *European Journal of Pharmacology*, 799, 7-15.

Challenge of Treating Depression in HIV-seropositive Individuals

- In one multisite study of individuals in HIV primary care, nearly 40% had PHQ-9 scores indicating depression or were already taking antidepressants (Cholera et al., 2017)
- Of those, approximately 60% were receiving antidepressants and only 36% of those had fully resolved symptoms
- Of individuals with persistent depressive symptoms, only 1 in 4 received a dose adjustment
 - indicates that HIV primary care providers may be comfortable starting a patient on antidepressants but not with ongoing management
- Highlights importance of referring patients to psychiatrists with experience treating HIV and co-occurring conditions

106

Slide 106: Challenge of Treating Depression in HIV-seropositive Individuals

It can be difficult to treat depression in HIV-seropositive individuals due to exacerbation of untreated depression co-occurring with HIV seropositivity. One study found that almost half of all survey respondents exhibited symptoms of depression or were already taking antidepressants.

(Notes for Slide 106, continued)

Slide 106: Challenge of Treating Depression in HIV-seropositive Individuals

While over half of the individuals taking antidepressants had fully resolved symptoms, only 25% of all the individuals with persistent depressive symptoms received any adjustment to their medication. This indicates that while HIV care providers start patients on antidepressants, there is limited follow-up or on-going management that results in changes to the initial treatment intervention.



REFERENCE:

Cholera, R., Pence, B.W., Bengtson, A.M., Crane, H.M., Christopoulos, K., et al. (2017). Mind the gap: gaps in antidepressant treatment, treatment adjustments, and outcomes among patients in routine HIV care in a multisite U.S. clinical cohort. *PLoS ONE*, *12*(1), 1-14.

Depression and Substance Misuse

- Depression and substance misuse are considered "syndemics" because they interact in marginalized populations to increase HIV risk behaviors and vulnerability to HIV (Stall et al., 2015)
- Antidepressant treatment is just as effective in PLWH with active alcohol use disorder as it is in PLWH with no alcohol use disorder (Grelotti et al., 2017)
 - Highlights the importance of treating depression even in the presence of active substance use

107

Slide 107: Depression and Substance Misuse

An important point here is that antidepressants are effective in treating depression among PLWH regardless of whether they are abusing alcohol. Clinicians should not be reluctant to actively treat depression even with active alcohol abuse.



REFERENCES:

Grelotti, D.J., Hammer, G.P., Dilley, J.W., Karasic, D.H., Sorensen, J.L., Bangsberg, D.R., & Tsai, A.C. (2017). Does substance use compromise depression treatment in persons with HIV? Findings from a randomized controlled trial. *AIDS Care* 29(3), 273-279.

Stall, R., Coulter, R.W.S., Friedman, M.R., & Plankey, M.W. (2015). Commentary on "Syndemics of psychosocial problems and HIV risk: a systematic review of empirical tests of the disease interaction concept" by A. Tsai and B. Burns. *Social Science & Medicine* 145, 129-131.

Disparities in Depression Treatment

- Among PLWH, women are more likely to report depressive symptoms and to receive antidepressant treatment than men (Bengtson et al., 2016)
- African-American and Hispanic PLWH are less likely to receive antidepressant treatment than white non-Hispanics, reflecting the same disparities found in the general population



Slide 108: Disparities in Depression Treatment

Health disparities exist among people living with HIV just as in the general population. Women are more likely to have depression, but African-American and Hispanic PLWH are less likely to receive antidepressants than White PLWH.



REFERENCE:

Bengtson, A.M., Pence, B.W., Crane, H.M., Christopolous, K., Fredericksen, R.J., et al. (2016). Disparities in Depressive symptoms and antidepressant treatment by gender and race/ethnicity among people living with HIV in the United States. *PLoS ONE 11(8)*, e0160738.



IMAGE CREDIT:

Fotolia, purchased image, 2017

Anxiety Disorders

- HIV+ screened positive for anxiety disorders at a rate 8 times that of the general population.
- Anxiety often manifests in autonomic and/or somatic symptoms that mimic medical issues:
 - chest pain/palpitations
 - breathing problems
 - choking sensation
 - muscle tension
 - nausea/ vomiting
 - sweating profusely
 - flushing/tingling sensations
 - fatigue
 - headache/vertigo
 - diarrhea

109

Slide 109: Anxiety Disorders

In one study, PLWH screened positive for anxiety disorders 8 times higher than rates in the general population. It is important to realize that anxiety often manifests in physical symptoms that mimic medical issues.



REFERENCE:

A.P.A. H.O.P.E. (2010) Training Module 3. American Psychological Association, p. 44f.

Slide 110: Diagnosing Anxiety Disorders



Have a member of the audience read through the quote and ask for volunteers to identify the ways in which this would look in their setting.



REFERENCE:

A.P.A. H.O.P.E. (2010) Training Module 3. American Psychological Association, p. 45f.

Diagnosing Anxiety Disorders

"A broad differential diagnosis should be considered including primary psychiatric disorders with associated anxiety (e.g., depressive disorders), neuropsychiatric disorders directly related to HIV infection (e.g., neurocognitive disorders and delirium), substance use or medications, and other HIV- related complications (e.g., various medical complications and medication side effects)."

SOURCE: A.P.A. H.O.P.E. (2010) Training Module 3, pp. 45f.

110

Differential Diagnosis: Substance-Induced vs. Primary Mental Disorders?

- Do episodes of substance abuse occur after an upsurge of psychiatric symptoms?
- Do psychiatric symptoms tend to occur only after episodes of substance use?
- Does substance abuse continue in the absence of psychiatric symptoms?
- Do symptoms of MI return when psycho-pharmacological treatment for these symptoms is discontinued?
- Does the client's history suggest the development of a particular MH disorder which was delayed or obscured by substance abuse?

111

Slide 111: Differential Diagnosis: Substance-Induced vs. Primary Mental Disorders?



Present these questions to the audience as questions that will assist them in making determinations as to whether or not symptoms are substance-induced or a primary mental disorder. For example, if episodes of substance abuse occur after the occurrence of psychiatric symptoms, the individual is most likely self-medicating to relieve symptoms of an existing primary mental disorder.

Bipolar Disorder and PLWH

- PLWH who have bipolar disorder do not demonstrate good adherence to psychotropic medications (i.e. 78% in one study; Casaletto et al., 2016)
- This is especially concerning in this population as PLWH who are less adherent to psychotropic medications tend to demonstrate poorer antiretroviral adherence as well (Cruess et al., 2012)

112

Slide 112: Bipolar Disorder and PLWH

As with many psychiatric conditions, PLWH with bipolar disorder tend to have reduced adherence to both psychotropic medications and HIV medications.

(Notes for Slide 112, continued)

Slide 112: Bipolar Disorder and PLWH



REFERENCES:

Casaletto., K.B., Kwan, S., Montoya, J.L., Obermeit, L.C., Gouaux, B., et al. (2016). Predictors of psychotropic medication adherence among HIV+ individuals living with bipolar disorder. *The International Journal of Psychiatry in Medicine*, 51(1), 69-83.

Cruess, D.G., Kalichman, S.C., Amaral, C., et al. (2012). Benefits of adherence to psychotropic medications on depressive symptoms and antiretroviral medication adherence among men and women living with HIV/AIDS. *Annals of Behavioral Medicine* 43, 189-197.

Slide 113: HIV-Associated Mania

There is limited data on HIV-associated mania though it appears that the impairment will increase as the disease progresses. HIV-related opportunistic infections that can mimic mania are: **toxoplasmosis**, a parasite infection causing flu-like symptoms; **cryptococcal meningitis**, a fungus typically found in the soil that can cause infection of the brain and spinal cord;

HIV-Associated Mania

- There is limited prevalence data on this diagnosis.
- Although, anecdotally, the prevalence rates increase as the disease progresses.
- Opportunistic infections which mimic mania: toxoplasmosis; cryptococcal meningitis; CNS lymphoma; neurosyphilis; herpes; and B12 deficiency.

113

(Notes for Slide 113, continued)

Slide 113: HIV-Associated Mania

CNS lymphoma, malignant cancer cells forming in the brain or spinal cord; **neurosyphilis**, syphilitic infection of the brain or spinal cord which can be indicated by headache, stiff neck, nausea and vomiting; **herpes**, a virus causing contagious sores often around the mouth or genitals; **B12 deficiency**, a vitamin bound to proteins in food which can cause dementia in severe cases of deficiency.



REFERENCE:

Ellen, S.R., Judd, F.K., Mijch, A.M., & Cockram, A. (1999), Secondary Mania in Patients with HIV Infection. *Australian & New Zealand Journal of Psychiatry*, 33, 353-360.

Diagnosis of HIV-Associated Mania

Common symptoms of HIV-associated mania include:

- decreased sleep
- increased activity (increased energy levels)
- euphoria
- inflated self-esteem
- increased talkativeness, pressured speech
- hyper-sexuality associated with impulsivity and poor judgment
- racing thoughts
- attention to irrelevant activities
- grandiosity
- hallucinations or delusions
- psychomotor agitation
- excessive spending

114

Slide 114: Diagnosis of HIV-Associated Mania



Read through the different symptoms of HIV-associated mania and ask the audience how those symptoms might be misdiagnosed or identified as a different substance-induced or mental health symptom.



REFERENCE:

A.P.A. H.O.P.E. (2010) Training Module 3. American Psychological Association, p. 49f.

Differential Dx for HIV Mania

Differential diagnoses to consider include:

- Bipolar disorder (manic or depressed)
- Substance-induced mood disorder
- Schizoaffective disorder
- Personality disorder
- HIV-associated dementia



Slide 115: Differential Dx for HIV Mania

While HIV mania can develop as the disease progresses, consider that other diagnoses may actually account for the symptoms. Other diagnoses to consider include bipolar disorder – either the manic symptoms or the depressive symptoms may mimic HIV mania. Substance-induced mood disorders, schizoaffective disorder, other personality disorders, and HIV-associated dementia can all create symptoms or behaviors that present similarly to HIV mania. Thorough and on-going assessment is clinically indicated.



IMAGE CREDIT:

Fotolia, purchased image, 2017



Slide 116: Drug-Drug Interactions

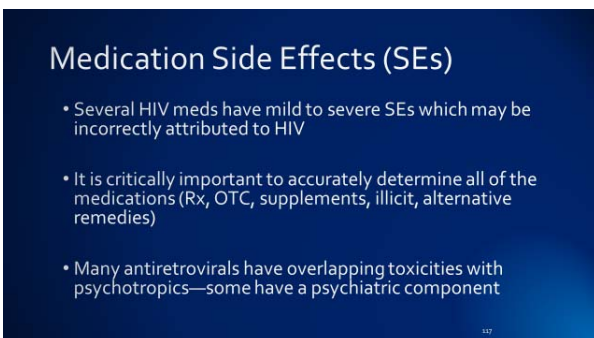


Note that this next subsection of treatment integration is to consider how drug-drug interactions may affect the patient. Throughout this section, encourage participants to consider their scope of practice and, if medication interactions are outside their scope, always refer to a physician if concerns arise.



IMAGE CREDIT:

Fotolia, purchased images, 2017



Slide 117: Medication Side Effects (SEs)

This slide introduces the section on drug-drug interactions. Many medications have side effects that may be attributed either to a psychiatric condition or to the HIV itself. Again, imperative to get a full medication/drug history.

Liver Processing: Cytochrome P₄₅₀ (CYP) Enzymes

- These enzymes **oxidize** (metabolize) drugs
- **Protease inhibitors** tend to **inhibit** CYP
- Most **NNRTI's** **induce** CYP
- If **CYP is being inhibited**, it can't metabolize other medications as well, **leading to higher blood levels** (bioavailability) of those meds
 - Therefore dosage of those meds may need to be **decreased**
 - Grapefruit juice is a potent CYP inhibitor
- If **CYP is being induced**, it may metabolize other meds too rapidly, **leading to lower levels** of those meds
 - Therefore dosage of those meds may need to be **increased**

118

Slide 118: Liver Processing: Cytochrome P450 (CYP) Enzymes

This slide explains how medications are metabolized by the cytochrome P450 (CYP) system in the liver.

Important points: protease inhibitors tend to inhibit CYP, while NNRTI's (non-nucleoside reverse transcriptase inhibitors) tend to induce CYP. This affects blood levels of other medications, often requiring a dose adjustment of those meds.



REFERENCE:

Stolbach, A., Paziana, K, Heverling, H., & Pham, P. (2015). A review of the toxicity of HIV medications II: interactions with drugs and complementary and alternative medicine products. *Journal of Medical Toxicology*, 11, 326-341.

Slide 119: Drug-Drug Interactions

Make the point that buspirone and zolpidem should be avoided by PLWH taking protease inhibitors and that of the anti-anxiety benzodiazepines, clonazepam and lorazepam are the safest to use with protease inhibitors.

Drug-Drug Interactions


- Medications metabolized by the CYP₄₅₀ or CYP_{3A4} systems should be avoided by PLWH taking protease inhibitors
- Anxiolytics:
 - Avoid buspirone and non-benzodiazepine sedative-hypnotics like zolpidem
 - Of the benzodiazepines, clonazepam and lorazepam are the safest to use

119

(Notes for Slide 119, continued)

Drug-Drug Interactions

- Examples:
 - Taking ritonavir with paroxetine or sertraline decreases concentrations of the antidepressants by 39-49%.
 - No significant interactions reported between ritonavir and fluoxetine or escitalopram



120

Slide 119: Drug-Drug Interactions

Additional information for trainers:

Buspirone → Buspar

Zolpidem → Ambien

Clonazepam → Klonopin

Loreazepam → Ativan

Slide 120: Drug-Drug Interactions

Taking paroxetine (Paxil) or sertraline (Zoloft) with ritonavir reduces the antidepressant blood levels by 39-49%, while there were no significant interactions reported between ritonavir and fluoxetine (Prozac) or escitalopram (Lexapro).



IMAGE CREDIT:

Fotolia, purchased image, 2017

Drug-Drug Interactions

- **Anxiolytics:**
 - Avoid buspirone and non-benzodiazepine sedative-hypnotics like zolpidem
- **Benzodiazepines:**
 - When taken in the presence of a CYP inhibitor, such as ritonavir, can result in increased sedation
 - When taken in the presence of a CYP inducer, like efavirenz, can result in decreased anxiolytic effect or even withdrawal symptoms
 - Clonazepam and lorazepam appear to be the safest to use

Slide 121: Drug-Drug Interactions

An individual taking anxiolytics and benzodiazepines should avoid taking other sedative-hypnotics or buspirone.

When benzodiazepines are taken with **CYP inhibitors** like ritonavir (an HIV antiviral medication), there can be increased sedation as a side effect of the medication. The mechanism of action when taken with a **CYP inducer** is the opposite and may result in withdrawal symptoms or a reduced anxiolytic effect which may compel the patient to try to take more of the benzodiazepine to get the desired effect.

Additional information for trainers:

CYP refers to the enzyme cytochrome which is responsible for the oxidation and disposal of certain molecules in the body.

Drug-Drug Interactions

- Antidepressants
 - SSRI's are generally safe to use, but since they are metabolized by the CYP450 system, their plasma levels may be affected by antiretrovirals
 - Best options are sertraline, citalopram, and escitalopram
- Depressed PLWH who are compliant on SSRI's show reductions in depressive symptoms, better ART adherence, and improved HIV-related laboratory results

122

Slide 122: Drug-Drug Interactions

As far as antidepressant interactions with HIV medications, the SSRI's appear to be generally safe to use, and of those the best options appear to be sertraline (Zoloft), citalopram (Celexa), and escitalopram (Lexapro).

Important point: depressed PLWH taking an SSRI have better outcomes not only in terms of reduced depressive symptoms, but also HIV-related outcomes.



REFERENCE:

Stolbach, A., Paziana, K, Heverling, H., & Pham, P. (2015). A review of the toxicity of HIV medications II: interactions with drugs and complementary and alternative medicine products. *Journal of Medical Toxicology*, 11, 326-341.

Slide 123: Drug-Drug Interactions

The tricyclic antidepressants have side effects similar to those of many antiretrovirals, so they may be multiplied if taken together. Bupropion (Wellbutrin) seems to have fewer side effects and to be easier to tolerate.

Drug-Drug Interactions

- TCA's (tricyclic antidepressants) should be used cautiously because of their increased side effect profile including dry mouth, a frequent complaint of PLWH taking ART
- Bupropion appears to be well-tolerated



123

(Notes for Slide 123, continued)



Slide 123: Drug-Drug Interactions



IMAGE CREDIT:

Fotolia, purchased image, 2017

Slide 124: HIV & Illicit Drug Interactions



Introduce the next section as focusing specifically on the interaction between HIV symptoms and medications and illicit drug use.



IMAGE CREDIT:

Fotolia, purchased images, 2017

Substance Abuse Disorder

- In 2015, 6% of all new HIV cases in the United States were related to injection drug use.
- IDU's are at a higher risk of developing bacterial infections.
- "Triple diagnosis" (HIV, MH disorder, & substance abuse) presents the most complex dilemmas to the clinician.

SOURCE: CDC, 2017

125

Slide 125: Substance Abuse Disorder

Illicit drug use is identified as use of any illegal substance or any prescription medication for a purpose other than intended by a prescribing physician. Six percent of all new HIV cases are due to injection drug use in the United States which also puts injection drug users (IDU) at greater risk of developing other health related consequences, such as bacterial infections.



REFERENCE:

Centers for Disease Control and Prevention. (2017, March). HIV and Injection Drug Use. Centers for Disease Control and Prevention: Division of HIV/AIDS Prevention. Retrieved from: <https://www.cdc.gov/hiv/risk/idu.html>.

Drug-Drug Interactions

- Opioids
 - Oxycodone administered with ritonavir (Norvir) for 4 days led to a tripling of oxycodone levels and participants reported increased subjective feelings of opioid activity
 - Because of the way hydrocodone is metabolized, administration with ritonavir should theoretically increase the risk of withdrawal symptoms or reduced pain relief
 - Methadone: NNRTI's reduced methadone levels by 37-45%, leading to symptoms of withdrawal
 - More complicated relationship with protease inhibitors
 - Bottom line: prescribers need to be aware of the possible interactions

126

Slide 126: Drug-Drug Interactions



Physicians and other prescribers need to be aware of the possible interactions between HIV meds and drugs of abuse. Read the examples of oxycodone, hydrocodone, and methadone from each bullet point.

(Notes for Slide 126, continued)

Drug-Drug Interactions
Illicit Drugs

- Heroin
 - Similar to morphine, patients should be monitored for signs & symptoms of either opioid withdrawal or opioid toxicity (increased drowsiness, decreased rate & depth of respiration, nausea, vomiting, hypotension, bradycardia), depending on the class of ARV taken

127

Slide 126: Drug-Drug Interactions

Additional information for trainers:

NNRTI – non nucleoside reverse transcription inhibitors



REFERENCE:

Antoniou, T. & Tseng, A.L. (2002). Interactions between recreational drugs and antiretroviral agents. *The Annals of Pharmacotherapy*, 36, 1598-1613.

Slide 127: Drug-Drug Interactions

Depending on the type of antiretroviral a patient is taking, if they are actively using heroin they should be monitored for either opioid withdrawal or opioid toxicity. There are very few studies looking at cocaine in combination with antiretrovirals, but the ones that exist indicate increased toxicity with protease inhibitors.



REFERENCE:

Antoniou, T. & Tseng, A.L. (2002). Interactions between recreational drugs and antiretroviral agents. *The Annals of Pharmacotherapy*, 36, 1598-1613.

Drug-Drug Interactions

Illicit Drugs

- Cocaine
 - Very few studies
 - Existing studies indicate increased toxicity with PI's
- Methamphetamine
 - Mainly metabolized by CYP, so again dangerous interactions may occur with PI's especially ritonavir (Norvir)
- MDMA (Ecstasy)
 - Taking with PI's can lead to increased levels of MDMA, toxicity including death
 - Patients using MDMA while on PI's should be warned to discontinue using MDMA or monitor reaction to small doses

128

Slide 128: Drug-Drug Interactions

Using either MDMA (Ecstasy) or methamphetamine with protease inhibitors is likely to produce life-threatening drug interactions.



REFERENCE:

Antoniou, T. & Tseng, A.L. (2002). Interactions between recreational drugs and antiretroviral agents. *The Annals of Pharmacotherapy*, 36, 1598-1613.

Slide 129: Drug-Drug Interactions

With regard to cannabis, using it with CYP inhibitors may lead to increased THC levels, causing unpleasant and/or dangerous side effects. However, using small amounts of cannabis may be relatively safe. Patients should be warned that they may need to reduce the amount of cannabis they use to obtain the same effect.

Drug-Drug Interactions

Illicit Drugs

- THC
 - In the presence of CYP inhibitors, may lead to increased THC levels, causing hallucinations, delusions, paranoia, altered time sense, anxiety, panic, loss of insight, orthostatic hypotension, and increased heart rate
 - However, "a clinically significant drug interaction may not exist when THC is used in moderate amounts. Patients who use THC and are beginning antiretroviral therapy should be warned about possible accentuation of the effects of THC, and that they may need to use less THC for the same effect following treatment initiation."
(Antoniou & Tseng, 2002, p. 1609)

129

(Notes for Slide 129, continued)

Drug-Drug Interactions
Alcohol

- Acute administration of alcohol may inhibit CYP
- Chronic administration of alcohol may reduce levels of medications metabolized by CYP, leading to sub-therapeutic concentration of PI's and NNRTI's, which could result in the development of resistance and reduced efficacy over time

130

Slide 129: Drug-Drug Interactions



REFERENCE:

Antoniou, T. & Tseng, A.L. (2002). Interactions between recreational drugs and antiretroviral agents. *The Annals of Pharmacotherapy*, 36, 1598-1613.

Slide 130: Drug-Drug Interactions

Regular drinking may lead to reduced levels of both PI's and NNRTI's, resulting in the development of resistant viral strains over time.



REFERENCE:

Antoniou, T. & Tseng, A.L. (2002). Interactions between recreational drugs and antiretroviral agents. *The Annals of Pharmacotherapy*, 36, 1598-1613.

Drug-Drug Interactions Illicit Drugs

- GHB
 - Also metabolized by CYP, so using while taking PI's could lead to GHB toxicity
- Ketamine
 - No studies or case reports of ketamine with antiretrovirals, but because of how it is metabolized, should be avoided particularly while taking ritonavir (Norvir), nelfinavir (Viracept), and efavirenz (Sustiva)

Slide 131: Drug-Drug Interactions

Both GHB and Ketamine should be avoided while taking protease inhibitors. GHB should be avoided due to being metabolized by CYP similarly to protease inhibitors which could result in increased GHB toxicity. While there are no studies that examine use of ketamine with antiretrovirals, it should be avoided based on the mechanism of metabolism.

Additional information for trainers:

Gamma hydroxybutyrate (GHB) is typically sold as a liquid or a powder and used for its euphoric effects. It can produce a feeling of calm and acts as a central nervous system depressant. It is sometimes referred to as the “date rape” drug due to the CNS depressant effects when mixed with alcohol.



REFERENCE:

Antoniou, T. & Tseng, A.L. (2002). Interactions between recreational drugs and antiretroviral agents. *The Annals of Pharmacotherapy*, 36, 1598-1613.

James' Story

James is an HIV positive 41-year-old male working as an auto mechanic who, 4 years ago, was involved in a head-on collision while attempting to pass another vehicle. James survived with a significant back injury and has only been able to work sporadically. While still in the hospital, James complained of feeling unreal, numb, and disinterested in the care he received. James was discharged from the hospital with a variety of medications, including pain pills. He started feeling he could not face the day without the pain medication and needs to drink "a little" to help him sleep. Recently, James reported difficulty sleeping due to bad dreams of the accident. He has been obtaining pain pills from a variety of illegal sources. Currently, he's at risk of becoming homeless due to missed work and inability to pay rent.

132

Slide 132: James' Story



Divide participants into groups of 2-4, depending on the size of the training. Read the vignette of James out loud and ask the participants to discuss the case in their groups and then debrief their discussion with the entire group. Allow 5-10 minutes for groups to review the case and develop answers for some key questions. Ask groups to consider:

- ***What other information do you need to know about James?***
- ***What questions/concerns would you have about medication interactions and/or substance use?***
- ***Given your role, when would James enter treatment at your facility?***
- ***What is the initial clinical focus of treatment and what strategies would you use to successfully engage James in integrated treatment?***

Allow for approximately 8 minutes for debrief, depending on the number of groups.



Slide 133: Treatment Approaches



The slide transitions from discussing assessment and drug-drug interaction information to identifying ways in which providers can start to utilize different treatment planning conceptualizations and interventions with clients.



IMAGE CREDIT:

Fotolia, purchased images, 2016



Slide 134: The Challenge of Integration

This slide identifies the challenges that providers tend to face at an organizational level in treatment complex “triple diagnosis” cases – clients who experience mental, physical and behavioral health impairments. The intervention slides frame treatment as requiring a multidisciplinary, integrated approach. Within this, role delineation is critical.

(Notes for Slide 134, continued)

Slide 134: The Challenge of Integration

Supportive and consistent supervision that is provided on an on-going basis will ensure that individuals who are working within an integrated service modality will be able to understand their role and the role of their team members.

Organizations should have a mechanism in place to provide regular and consistent feedback to staff in order to make communication about progress as efficient as possible. Research indicates that integrating services can improve outcomes for patients while reducing overall health costs. The following slides will present some of the challenges that may arise and how to address those challenges.



REFERENCE:

Kaaya, S., Eutache, E., Lapidos-Salaiz, I., Musisi, S., Psaros, C. & Wissow, L. (2013). Grand Challenges: Improving HIV Treatment Outcomes by Integrating Interventions for Co-Morbid Mental Illness. *PLOS Medicine*, 10(5), 1-5.

Recommendation 1: Use a Life Course Approach

- **Early intervention** may reduce effects of HAND
- **Prevention of Mother-to-Child Transmission (PMTCT) Curriculum** reduces the risk of vertical HIV transmission across settings with high and low resources
- **Reduction of cognitive impairments earlier** may enhance opportunities for education and employment
- **ART is beneficial** in minimizing exacerbation of neurocognitive declines

SOURCE: Kaaya et al, 2013

135

Slide 135: Recommendation 1: Use a Life Course Approach

From the Kaaya et al study referenced on the previous slide, there are four specific recommendations for organizational development of capacity to meet the challenges of integration presented by individuals diagnosed with HIV, mental health issues, and substance use issues. The first recommendation is to use a life course approach in conceptualization and treatment intervention. This includes, intervening early; if individuals can be screened for mental, physical, and behavioral health issues regularly, the possibility of earlier detection before significant impairments or exacerbation of impairments occurs is higher. Earlier intervention may reduce the effects of HAND and improve or maintain cognitive functioning. Antiretroviral treatments are beneficial in minimizing these neurocognitive declines.

Additional Information for Trainers:

PMTCT – Prevention of Mother-to-Child Transmission is a curriculum for healthcare providers to begin to reduce risk of transmission of HIV from mother to child.

(Notes for Slide 135, continued)

Slide 135: Recommendation 1: Use a Life Course Approach

This type of transmission is referred to as **vertical** transmission, whereas **horizontal** transmission is any method of transmission between individuals of the a similar generation through transmission of bodily fluids (rather than from one generation to the next as in a parent-child relationship).



REFERENCE:

Kaaya, S., Eutache, E., Lapidos-Salaiz, I., Musisi, S., Psaros, C. & Wissow, L. (2013). Grand Challenges: Improving HIV Treatment Outcomes by Integrating Interventions for Co-Morbid Mental Illness. *PLOS Medicine*, 10(5), 1-5.

**Recommendation 2:
Use Evidence-Based Interventions**

- Cognitive Behavioral Therapy, Interpersonal Therapy, and Supportive Psychotherapy have been studied in a variety of settings
 - Results include reduced severity of depression symptoms, increased coping, enhanced support networks, and increased self-esteem
 - Can be administered by licensed providers and trained non-specialized healthcare workers
- Screening, Brief Intervention and Referral to Treatment increases moderate and safe levels of drinking
- Reduction in mortality among problem drinkers
- SBI provides opportunities for assessment of incremental benefits in HIV treatment

SOURCE: Kaaya et al, 2013

Slide 136: Recommendation 2: Use Evidence-Based Interventions

From the Kaaya et al study referenced on the previous slide, there are four specific recommendations for organizational development of capacity to meet the challenges of integration presented by individuals diagnosed with HIV, mental health issues, and substance use issues.

(Notes for Slide 136, continued)

Slide 136: Recommendation 2: Use Evidence-Based Interventions

The second recommendation is to use evidence-based treatment interventions. Cognitive-behavioral based treatment interventions that have strong evidence supporting their use with “triple” diagnosed populations can be accessible to multiple disciplines and levels of experience among providers at an organization. Screening, brief intervention and referral to treatment services act as a harm reduction model for alcohol use and can increase opportunities for on-going screening and assessment of progress in treatment.

Additional Information for Trainers: The following acronyms represent evidence-based treatments that are manualized or brief interventions that have demonstrated efficacy with reducing substance use and depressive symptoms as well as enhancing motivation or coping skills.

CBT – cognitive-behavioral therapy

IPT – interpersonal therapy

SPT – supportive psychotherapy

SBIRT – screening, brief intervention, and referral to treatment

(Notes for Slide 136, continued)

**Recommendation 3:
Understanding Environmental Influences**

- Complete a comprehensive assessment of daily life stressors that influence the individual's and family's ability to manage
- Integrated, multidisciplinary treatment is associated with improved ART adherence
- Project TALC has been adapted to incorporate specific culturally and regionally relevant approaches to wellness and healing
- Following administration, caregivers reported less HIV-related stigma

SOURCE: Kaaya et al, 2013

Slide 136: Recommendation 2: Use Evidence-Based Interventions



REFERENCE:

Kaaya, S., Eutache, E., Lapidos-Salaiz, I., Musisi, S., Psaros, C. & Wissow, L. (2013). Grand Challenges: Improving HIV Treatment Outcomes by Integrating Interventions for Co-Morbid Mental Illness. *PLOS Medicine*, 10(5), 1-5.

Slide 137: Recommendations 3: Understanding Environmental Influences

From the Kaaya et al study referenced on the previous slide, there are four specific recommendations for organizational development of capacity to meet the challenges of integration presented by individuals diagnosed with HIV, mental health issues, and substance use issues. The third recommendation is to understand the way in which the environment influences recovery and health.

(Notes for Slide 137, continued)

**Slide 137: Recommendation 3:
Understanding Environmental
Influences**

A comprehensive assessment examining biopsychosocial factors related to mental health, substance use, and health-related behaviors can provide information about the way in which daily life stressors influence the individual and family's ability to manage symptoms. An emphasis on integrated, multidisciplinary approaches to care enhances ART adherence and improves treatment outcomes.

Project TALC – Teens and Adults Learning to Communicate is a modular approach to enhancing communication between caregivers/adults with HIV or AIDS and teens living with adults who have HIV or AIDS. Enrollment in the curriculum resulted in reduced HIV/AIDS-related stigma.



REFERENCE:

Kaaya, S., Eutache, E., Lapidos-Salaiz, I., Musisi, S., Psaros, C. & Wissow, L. (2013). Grand Challenges: Improving HIV Treatment Outcomes by Integrating Interventions for Co-Morbid Mental Illness. *PLOS Medicine*, 10(5), 1-5.

Recommendation 4: System-Wide Approaches

- People tend to seek care for physical causes of impairments resulting from chronic illnesses rather than psychological
- Onset of a mental disorder can indicate a new or worsening medical issue
- Resource availability for individuals with MNS and HIV tend to be expensive and/or time consuming
- Integration can reduce barriers to treatment as well as minimize stigma

SOURCE: Kaaya et al, 2013

138

Slide 138: Recommendation 4: System-Wide Approaches

From the Kaaya et al study referenced on the previous slide, there are four specific recommendations for organizational development of capacity to meet the challenges of integration presented by individuals diagnosed with HIV, mental health issues, and substance use issues. The fourth recommendation is to consider system-wide approaches to integrated treatment. This includes the recognition that most people will tend to seek care or access care as a result of physical impairments resulting from chronic illnesses rather than psychological reasons. However, the onset of a mental disorder may place the individual at risk of developing a medical condition or exacerbating an existing medical condition. While resources for treatment of co-occurring mental health/substance use and HIV conditions can be expensive or difficult to find, integrating services at all points of access, even if just for screening and referral, can maximize opportunities for engagement, education, and early identification.

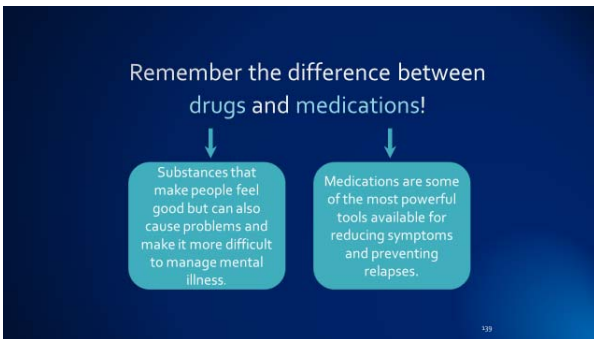
(Notes for Slide 138, continued)

Slide 138: Recommendation 4: System-Wide Approaches



REFERENCE:

Kaaya, S., Eutache, E., Lapidos-Salaiz, I., Musisi, S., Psaros, C. & Wissow, L. (2013). Grand Challenges: Improving HIV Treatment Outcomes by Integrating Interventions for Co-Morbid Mental Illness. *PLOS Medicine*, 10(5), 1-5.



Slide 139: Remember the difference between drugs and medications!

This slide is the same as Slide 14. It is presented again at this point in the presentation in order to remind participants that the distinction between medications and drugs is important and the way in which providers use language can enhance motivation and assist understanding.

Motivational Strategies for Med Adherence

- MI-based brief interventions can reduce non-injection drug use among HIV-positive individuals (Aharonovich et al., 2017)
- Older PLWH (>60) experience more agitation, apathy, irritability, anxiety, and depression than older non-infected individuals (Milanini, 2017)
- Listening for change talk and modifying intervention appropriately
 - Connect the interventions (the desired behavior change) to something that is intrinsically valuable to the individual

Slide 140: Motivational Strategies for Med Adherence

As a continuation of the previous slide, the way in which language is used can act as a motivational strategy to increase medication compliance. MI-based brief interventions can be useful, particularly among non-injection drug use HIV-positive individuals. A longer timeframe for intervention may be required to create substantial change for individuals injecting drugs. Motivational techniques can also be useful in reducing experiences of agitation, apathy, irritability, anxiety, and depression among older individuals diagnosed with HIV. The opportunity to listen for “change talk” means being able to hear what the individual is saying, identify their own self-identified values and incorporate that into an intervention.



REFERENCES:

Aharonovich, E., Sarvet, A., Stohl, M., DesJarlais, D., Tross, S., et al. (2017). Reducing non-injection drug use in HIV primary care: A randomized trial of brief motivational interviewing, with and without HealthCall, a technology-based enhancement. *Journal of Substance Abuse Treatment, 74*, 71-79.

(Notes for Slide 140, continued)

Talking with Clients
about their Medication Use

- "How many doses have you missed?"
- Have you felt or acted different on days when you missed your medication?
- Was missing the medication related to any substance use relapse?
- "Why did you miss the medication? Did you forget, or did you choose not to take it at that time?" Without judgment

Slide 140: Medication Strategies for Med Adherence

Milanini, B., Catella, S., Perkovich, B., Esmaeili-Firidouni, P., Wendelken, L., et al. (2017). Psychiatric symptom burden in older people living with HIV with and without cognitive impairment: the UCSF HIV over 60 cohort study. *AIDS Care*, 29(9), 1178-1185.

Slide 141: Talking with Clients about their Medication Use

When talking to client about their medication adherence, use open-ended questions when able to determine whether or not the individual recognizes having acted differently when missing doses or to determine whether missed doses were related to substance use/relapse. It may be useful to help the client identify reasons as to why they were unable to take medications to develop insight around medication adherence. When asking questions, it is important to ask without judgement. Two useful questions to ask are: "how many doses did you miss"; and "why did you miss doses?" In asking these questions, it is essential to talk to the client during the first session in which medication is identified as an important goal about the reason a provider might be asking these questions.

(Notes for Slide 141, continued)

Talking with Clients about their Medication

- For clients who admit to choosing **NOT** to take their medication:
 - Acknowledge they have a right to choose **NOT** to use any medication
 - They owe it to themselves to make sure their decision is well thought out
 - They need to discuss it with their prescribing physician
 - What is the reason for choosing not to take the medication?
 - *Don't accept "I just don't like pills".* Tell them you are sure they wouldn't make such an important decision without having a reason

141

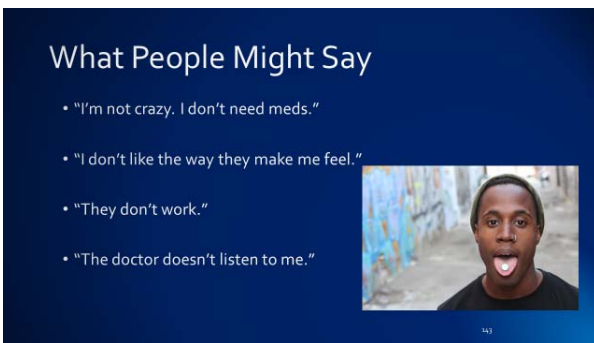
Slide 141: Talking with Clients about their Medication Use

Without establishing the purpose behind these questions, they can easily be construed as judgmental, even if the provider is intending to ask them without judgment. Let the client know ahead of time that these questions will always be asked because people miss doses, but just because doses are missed does not mean it will not be discussed in the hopes of coming up with coping mechanisms and organizational strategies to prevent missed doses in the future.

Slide 142: Talking with Clients About their Medication

If a client admits to not taking a medication, a few strategies for continuing the conversation include acknowledging that they have a right to choose **NOT** to take their medication and that it is, ultimately, their choice whether or not they decide to take the medication; talk about the pros and cons of medication use; what is the individual getting out of using medication versus not using medication. As a provider, never accept "I just don't like pills."

(Notes for Slide 142, continued)



Slide 142: Talking with Clients About their Medication

This is an opportunity to focus on developing an intervention that could help the client identify a reason for such an important decision.

Slide 143: What People Might Say



Conduct a group activity based on things clients may say as reasons for not taking a medication. Have training participants break into groups of 3-4 and discuss how they might address each of the phrases on the slide if a client were to give this as a reason for not taking medication. Debrief the activity by asking groups to share how they would address each of the phrases.



IMAGE CREDIT:

Fotolia, purchased image, 2017

Using medication effectively

- Relapses decrease with consistent medication adherence
- Different symptoms require different combinations of medications
- Individuals require different combinations of medications
- Medication may contain a “trial-and-error” aspect
- Medication may not offer immediate relief

144

Slide 144: Using Medication Effectively

Some other education that you might be able to provide to clients to help them understand medication includes the fact that relapses decrease with consistent medication adherence. It can be useful for clients to know that medication administration or prescribing can be a process and different symptoms require different combinations of medications that may have to be modified or adjusted during an initial “trial-and-error” period and in on-going reassessment of treatment needs based on progress. Medications can also take time to start working, potentially up to a week or two of continuous use.

Dealing with side effects

- Reaction to medication may depend on age, weight, sex, metabolic rate, other medications, etc.
- In most cases, side effects are temporary
- More serious side effects are associated with misuse or older antipsychotics

145

Slide 145: Dealing with Side Effects

Side effects may be part of the medication use. Some individuals experience side effects and others experience minimal side effects. The extent to which an individual may experience side effects depends on the medication being used and individual differences including age, weight, sex, metabolic rate and other medications.

(Notes for Slide 145, continued)

Dealing with side effects

- If experiencing side effects, be sure to talk to prescribing doctor
- Get as much information as possible
- Consider questions to ask prior to meeting with doctor

Category of medication	Medication I used from this category	Side effects I had when taking this medication
Antidepressants		
Mood stabilizers		

Topic 5
145

Slide 145: Dealing with Side Effects

In general, the side effects are temporary but certain medications may carry risk of significant side effects (i.e. antidepressants and the potential for increased suicidality). Always talk to a doctor if experiencing side effects.

Slide 146: Dealing with Side Effects

A useful tool may be for the client or client and provider to write down side effects as they occur. Keeping a log of different medications and the class of medications helps to organize the client's medication adherence as well as provide the counselor with a list of how the client is experiencing different medications. Consider, ahead of time, questions that need to be asked to doctors in order for the client to adequately advocate for themselves and have any concerns addressed in the meeting with the doctor.

(Notes for Slide 146, continued)

Dealing with side effects

- Some questions to guide discussion with a doctor:
 - How will this medication help me? What will it help me with?
 - How long does it take the medication to work? How long will it be before I feel some benefit?
 - What side effects are there? Long term?
 - What can I do about side effects?
 - What if it doesn't work for me?

147

Slide 146: Dealing with Side Effects



REFERENCE:

Illness Management and Recovery: Evidence-Based Practices KIT. (2009). *U.S. Dept. of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, Rockville, MD.*

Slide 147: Dealing with Side Effects



This slide provides sample questions the client and counselor may want to consider in consultation with a doctor regarding side effects of medications. Ask the audience for other questions that might be useful for a client to consider prior to meeting with a doctor. Ask the audience to identify interventions or skills that client may be able to develop in order to ensure that there is a structured, organized method for keeping track of questions and remembering to ask them during a meeting with a doctor.

Dealing with side effects

The primary care provider is a critical team member and vital to decision-making. It is important that clients actively participate to contribute their expertise and counselors remain updated with treatment planning.



Slide 148: Dealing with Side Effects



Remind and emphasize for participants that integrating multidisciplinary team members, including doctors, leads to improved outcomes in treatment.



IMAGE CREDIT:

Fotolia, purchased image, 2017

Developing a medication schedule

- Make it as simple as possible
- Embed it into your daily routine
- Take medicine at the same time everyday
- Establish clear reminders and cues

Mon	Tues	Wed	Thurs	Fri	Sat	Sun

Slide 149: Developing a medication schedule

Consider ways to increase medication compliance, including developing a medication schedule that is simple to understand for the client. Make sure the schedule to take medications is embedded in the individual's daily schedule at a consistent time and place. Identify opportunities for clear reminders or cues (i.e. putting an alarm in a client's smartphone, putting post-it note reminders next to medication or near an item the client uses everyday like a toothbrush or television remote).

Enhancing medication compliance

- Break steps down into manageable pieces
- Tailor medication routine to individual's daily routine
- Identify obstacles

Exercise: Strategies for Getting the Best Results from Medication	I have used this strategy	I would like to use this strategy
Strategy		
Simplify the medication schedule	<input type="checkbox"/>	<input type="checkbox"/>
Take medications at the same time every day	<input type="checkbox"/>	<input type="checkbox"/>
Build taking medication into the daily routine	<input type="checkbox"/>	<input type="checkbox"/>
Use cues and reminders (pillboxes, notes, pill organizers)	<input type="checkbox"/>	<input type="checkbox"/>
Research myself of the benefits of taking medications	<input type="checkbox"/>	<input type="checkbox"/>
Other:	<input type="checkbox"/>	<input type="checkbox"/>

Topic 5

150

Slide 50: Enhancing medication compliance

Another recommendation to enhance medication compliance is to write down strategies, whether a client has tried them or not, and ask the client which they have tried, which they haven't, and which they might consider using in the future. This allows for a conversation that will break steps down into discrete, manageable pieces while tailoring taking medication to an individual's daily schedule and routine. Always consider what obstacles may be present in order to try to address those before they become stressors that might cause the individual to miss a dose.

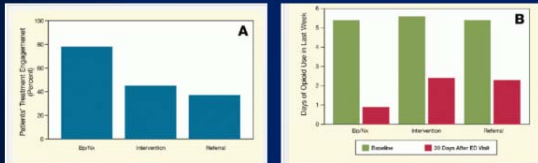


REFERENCE:

Illness Management and Recovery: Evidence-Based Practices KIT. (2009). *U.S. Dept. of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, Rockville, MD.*

Continuity is important

Patients given an initial dose of medication demonstrated higher treatment engagement and reduced days of illicit substance use



SOURCE: D'Onofrio & Fiellin, 2015

Slide 151: Continuity is important

The main point of this slide is that individuals who were provided with medication-assisted treatment for substance use issues at intake showed a greater reduction in substance use and improved treatment engagement compared to individuals who just received an intervention or referral. Important to consider is that if we can effectively engage individuals using medicines that reduce unpleasant symptoms, they are more likely to be engaged and treatment compliant.

Additional information for trainers:

Drs. Gail D'Onofrio, David Fiellin, and colleagues at the Yale School of Medicine and School of Public Health screened 71,000 patients who presented for emergency care at a large urban hospital. Of 329 who met the researchers' study criteria and were found to be addicted to opioids, one-third (34 percent) came to the ED seeking treatment for their opioid addiction, and another 8.8 percent were experiencing opioid overdoses. The rest were identified through screening after presenting with various other emergencies. Most (75.1 percent) used heroin, and the remainder reported misusing prescription opioids exclusively.

(Notes for Slide 151, continued)

Slide 151: Continuity is important

Use or misuse of other addictive drugs was highly prevalent, including cigarettes (88 percent), cocaine (55 percent), marijuana (53 percent), and sedatives (47 percent).

The researchers assigned each patient addicted to opioids to one of three protocols:

Referral for treatment via a handout with information on local treatment centers offering inpatient and outpatient care, and how to contact them

A 10-to-15 minute motivational and informational discussion addressing drug use, addiction, and treatment, using the manualized Brief Negotiation Interview (BNI) modified for opioid users; plus active connection to local service providers, securing of insurance approval, and transportation arrangements

The BNI and a sufficient take-home supply of Bp/Nx (preceded by an onsite initial dose of Bp/Nx for patients in withdrawal) to last until an initial scheduled appointment for office-based follow-up care within 3 days

(Notes for Slide 151, continued)

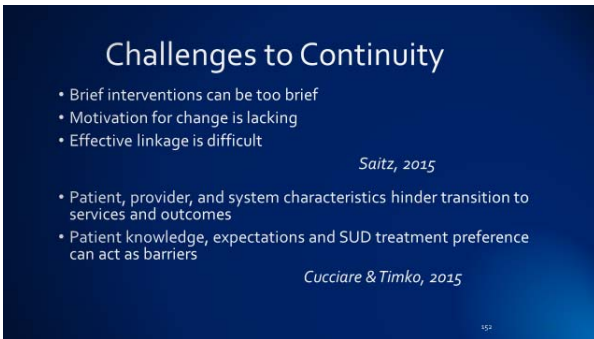
Slide 151: Continuity is important

They found that 30 days after their ED visits, 78 percent of patients who were given Bp/Nx were engaged in addiction treatment, compared with 45 percent of those in the referral and brief intervention group, and 37 percent in the referral-only group (see Figure).

The average number of days per week of self-reported opioid use, which was 5.4 in all groups at the time of their ED visit, had fallen to 0.9 in the Bp/Nx group, 2.4 in the interview plus referral group, and 2.3 in the referral-only group.

Among the patients who were engaged in treatment at follow-up, fewer of those who had initiated Bp/Nx in the ED were enrolled in costly inpatient care (11 percent versus 35 to 37 percent in the other groups). Patients in all three groups exhibited similar reductions of about one-third in behaviors that increase the risk for contracting or transmitting HIV.

(Notes for Slide 151, continued)



Challenges to Continuity

- Brief interventions can be too brief
- Motivation for change is lacking
- Effective linkage is difficult

Saitz, 2015

- Patient, provider, and system characteristics hinder transition to services and outcomes
- Patient knowledge, expectations and SUD treatment preference can act as barriers

Cucciare & Timko, 2015

152

Slide 151: Continuity is important



REFERENCE:

D’Onofrio, G., O’Connor, P.G., Pantalon, M.V., Chawarski, M.C., Busch, S.H. et al. (2015). Emergency department-initiated buprenorphine/naloxone treatment for opioid dependence: a randomized clinical trial. *JAMA*, 313(16), 1636-1644.

Slide 152: Challenges to Continuity

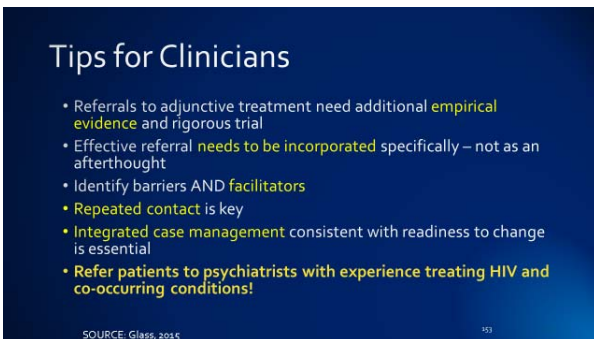
Case management and linkage is an essential component of integrated treatment as recommended in the four treatment approaches previously discussed in this section (Kaaya, et al, 2013). Some of the challenges to effective continuity in care include a brief intervention being too brief. If a brief intervention is the service an individual receives in a community health clinic, hospital, or other health agency before being referred to specialty care, providers should ensure that there is on-going communication and intervention, if possible.

(Notes for Slide 152, continued)

Slide 152: Challenges to Continuity

Motivation for change is typically lacking in individuals who come in for substance use or mental health treatment which makes continuity difficult to maintain and effective linkage a challenge. A number of system characteristics, including lack of resources or long waitlists, can hinder transition and coordination. Patient characteristics such as lack of motivation can also impact referral. Provider characteristics such as holding clients too long or not communicating with treatment team can also influence outcomes in treatment. It is useful to educate patients and determine expectations for treatment in order to reduce barriers that may arise from misinformation. Consider the way in which stigma – whether it's mental health, substance use treatment, or HIV diagnosis – that may contribute to hindering engagement.

(Notes for Slide 152, continued)



Tips for Clinicians

- Referrals to adjunctive treatment need additional **empirical evidence** and rigorous trial
- Effective referral **needs to be incorporated** specifically – not as an afterthought
- Identify barriers AND **facilitators**
- **Repeated contact** is key
- **Integrated case management** consistent with readiness to change is essential
- **Refer patients to psychiatrists with experience treating HIV and co-occurring conditions!**

SOURCE: Glass, 2015 153

Slide 152: Challenges to Continuity



REFERENCES:

Cucciare, M.A., & Timko, C., (2015). Bridging the gap between medical settings and specialty addiction treatment. *Addiction, 110(9)*, 1417-1419.

Saitz, R. (2015). Is SBIRT the answer? Probably not. *Addiction, 110(9)*, 1416-1417.

Slide 153: Tips for Clinicians



Review the tips for clinicians presented on the slide to enhance integrated coordination of treatment. Ask participants what other suggestions or ideas they have for improving referral and communication among providers.



REFERENCE:

Glass, J.E. (2015). Challenges ahead in developing and testing referral to treatment interventions. *Addiction, 110(9)*, 1419-1420.

Tips for Clinicians/Final Thoughts

- Integrate and coordinate care
- Utilize motivational enhancement techniques to discuss understanding of prescribed medications and increase adherence
- Utilize CBT approaches to organize routines as well as on-going questions or concerns
- Assist clients in improving their insight and health literacy regarding prescriptions and medication interactions
- Enhance linkage by providing specific support and following-up on referrals
- Communicate!

154

Post-Test Question

1. This is the second most commonly abused category of drugs in the United States:

- A. Marijuana
- B. Heroin
- C. Benzodiazepines/anxiolytics
- D. Prescription pain relievers

155

Slide 154: Tips for Clinicians/Final Thoughts



Review the final tips for clinicians and begin to summarize the training. Note that importance of communication – it is impossible (and outside of most providers’ scope of practice) to know every single medication/drug interaction; make sure that you are communicating with other providers on the integrated team.

Slide 155: Post-Test Question #1



Read the question and answer choices, and review audience responses out loud. Once the audience has submitted their responses, read the percentage for each response and then provide the correct answer.

The correct answer is D – Prescription pain relievers.



**Audience Response System (ARS)-compatible slide

Post-Test Question

2. The United States ranks ____ in the world for highest rates of HIV in severely mentally ill (SMI) populations.
- A. first
 - B. second
 - C. third
 - D. last

156

Slide 156: Post-Test Question #2



Read the question and answer choices, and review audience responses out loud. Once the audience has submitted their responses, read the percentage for each response and then provide the correct answer.

The correct answer is B – second.



**Audience Response System (ARS)-compatible slide

Post-Test Question

3. Mental disorders are one of the top five reasons individuals visit the doctor each year.
- A. True
 - B. False

157

Slide 157: Post-Test Question #3



Read the question and answer choices, and review audience responses out loud. Once the audience has submitted their responses, read the percentage for each response and then provide the correct answer.

The correct answer is A – True.



**Audience Response System (ARS)-compatible slide

Post-Test Question

4. Development of mental, neurocognitive, or substance use issues among people living with HIV (PLWH) is associated with:
- A. Increased integrative services
 - B. Lower ART adherence
 - C. Lower quality of life
 - D. Both B and C
 - E. All of the above

158

Slide 158: Post-Test Question #4



Read the question and answer choices, and review audience responses out loud. Once the audience has submitted their responses, read the percentage for each response and then provide the correct answer.

The correct answer is D – Both B and C.



**Audience Response System (ARS)-compatible slide

Post-Test Question

5. Rates of depression among PLWH are easy to predict because of grief and loss related to receiving an HIV diagnosis.
- A. True
 - B. False

159

Slide 159: Post-Test Question #5



Read the question and answer choices, and review audience responses out loud. Once the audience has submitted their responses, read the percentage for each response and then provide the correct answer.

The correct answer is B – False.



**Audience Response System (ARS)-compatible slide



SLIDE 160: [Final slide]



This concludes the presentation. Thank the participants for their time and address any last-minute questions about the content. Encourage participants to reach out to the Pacific Southwest ATTC or the LA Region PAETC, should they have questions or concerns following the training session.

Acknowledgements

Prepared in 2017 by: Pacific Southwest Addiction Technology Transfer Center

11075 Santa Monica Boulevard, Suite 200

Los Angeles, California 90025

T: (310) 267-5408

F: (310) 312-0538

pacificsouthwestca@attcnetwork.org

At the time of writing, Thomas E. Freese, Ph.D. served as the Principal Investigator and Director of the HHS Region 9, Pacific Southwest Addiction Technology Transfer Center, based at UCLA Integrated Substance Abuse Programs. Humberto M. Carvalho, MPH, served as the ATTC Government Project Officer, and Kimberly Johnson, PhD, served as Director of the Center for Substance Abuse Treatment, Substance Abuse and Mental Health Services Administration. The opinions expressed herein are the views of the authors and do not reflect the official position of the PAETC/HRSA or the Pacific Southwest ATTC/SAMHSA-CSAT. No official support or endorsement of the PAETC/HRSA or the Pacific Southwest ATTC/SAMHSA-CSAT for the opinions described in this document is intended or should be inferred.