



Mental Health and Substance Abuse Needs Assessment for Marion County

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Table of Contents

Mental Illness and Mental Health	5
Indiana Epidemiology	6
Consequences	10
Stigma	15
Substance Abuse and Addiction	17
Indiana Epidemiology	17
Consequences	23
Thoughts for Policymakers	27
References	29
Endnotes	33

This needs assessment was conducted for Mental Health America of Greater Indianapolis (MHAGI). MHAGI is Indianapolis' leading nonprofit dedicated to helping ALL people live mentally healthier lives. MHAGI is an affiliate of the national Mental Health America and a chapter of Mental Health America of Indiana.

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INTRODUCTION

In Marion County and other communities around Indiana and the country - you or I, children and loved ones, friends and neighbors, families and co-workers suffer quietly . . . sometimes hopelessly, mostly in desperation; feeling isolated, unsupported, stigmatized . . . unsure of what to do, who to talk with, where to go for help.

Living this quiet desperation; a silence so loud and jarring that it echoes through every facet of life; impacts city, state and national government and budgets; debilitates community life, robs productivity and dreams in both school and work; and is spreading like a cancer through our armed forces.

Mental Illness – we’re reluctant to call ‘it’ by name and even more terrified to have ‘it’! Mental illness – a misnomer . . . because just as physical illness affects the body and impacts our mental state; mental illness is an illness affecting the chemistry of the brain impacting the body.

And yet, when we have a kind of ‘diabetes of our brain/ mind’, and we feel bummed out and run down, and have lost our interest in things, and can’t sleep and feel really crummy . . . we feel we should cure ourselves . . . we’re embarrassed, we feel ‘less than’, feel like we can’t tell anyone because we’re afraid someone will think we’re ‘crazy’. And if we ‘tell’ . . . the community shuns us or tells us we’re ‘malingering’, we should ‘pick ourselves up by our bootstraps.’

A vicious cycle of self-deprecation and community stigmatization adding up to people not seeking treatment for illness . . . businesses losing millions, insurance

premiums skyrocketing and individuals and families suffering needlessly.

If you have ever suffered from stress, depression, anxiety, panic, PTSD, bipolar illness, etc . . . or know of someone who has, you are not alone . . . and if I was to ask ‘You’ to stand up and be counted . . . your neighbors, club members, school chums, colleagues, co-workers, associates, doctor ,grocer, clergy, server , elected official and bus driver would be standing right alongside of you!

The prevalence of mental illness, even the ‘common colds’ such as depression and anxiety; and the devastating impact that it can have begs for a voice and the bright light of day. For this reason Mental Health America of Greater Indianapolis is profoundly thankful to the Center for Health Policy for this partnership and willingness to prepare this overview of the state of Mental Health and Substance Abuse in Marion County; a timely and coherent assessment that has created an ‘opening’ through which we can see more clearly and respond more hopefully to the mental health needs of our community.

Specifically, Mental Health America of Greater Indianapolis would like to thank Dr. Eric Wright; Marion Greene, MPH; and Matthew Williams, MA.

Thank you,

Marla H. Zimmerman, MA, LCSW, LMFT

Immediate Past President Mental Health America of Greater Indianapolis

Ψ MENTAL ILLNESS AND MENTAL HEALTH

Mental illnesses are medical conditions that disrupt a person's thinking, feeling, mood, ability to relate to others, and daily functioning. The U.S. Department of Health and Human Services' publication *Healthy People 2010* states that mental disorders occur across the lifespan and can affect anyone—people of all racial and ethnic groups, both genders, and all educational and socioeconomic groups [1].

Defining the concepts of mental health and mental illness can be complex and numerous definitions exist. Mental health and illness have been described as dynamic, ever-changing phenomena, reflecting an individual's genetic inheritance and life experiences [2]. Mental disorders are medical conditions caused by alterations in thinking, mood, or behavior (or a combination thereof); they are associated with distress and may impair functioning. Mental disorders can lead to disability, pain, or death. The term *mental illness* refers collectively to all diagnosable mental disorders [1].

Six percent of Americans suffer from serious mental illness (also known as severe mental illness or SMI). The Substance Abuse and Mental Health Services Administration defines SMI as "having a diagnosable mental, behavioral, or emotional disorder that met criteria in the . . . DSM-IV¹ . . . and that resulted in functional impairment that substantially interfered with or limited one or more major life activities [3].

These major life activities can include maintaining everyday relationships with family and friends, as well as functioning at work. Serious mental illness includes major (clinical) depression, bipolar disorder, anxiety, and schizophrenia, to name a few [2]. According to a report by the World Health Organization, unipolar depressive disorders were ranked as the

number one cause of years of life lost due to disability in low-, middle-, and high-income countries [4].

Even children are not immune to the devastating effects of mental illness. In children and adolescents, the term serious emotional disturbance (SED) is used instead of SMI [5]. Common childhood mental disorders, such as Attention Deficient Hyperactivity Disorder (ADHD), can lead to serious social consequences later in life, such as additional psychiatric problems, increased violence or aggression, or problems with peers [6].

As indicated by the National Institute of Mental Health, mental disorders are a common occurrence in the United States, with over 26 percent of adults ages 18 or older having a diagnosable mental disorder in any given year [7]. The rates for children and adolescents are somewhat similar, with at least 20 percent suffering from a diagnosable mental illness [1].

According to a study, lifetime prevalence for any mental disorder in the U.S. population is 46.4 percent [8]. Prevalence rates for selected disorders that meet DSM-IV criteria include:

- anxiety disorders (28.8 percent)
- impulse control disorders (24.8 percent)
- mood disorders (20.8 percent)
- substance use disorders (14.6 percent)

The study also determined that half of all lifetime cases start by age 14 and three-fourths by age 24 [8].

The estimated costs associated with mental illness in the United States are considerable. According to the U.S. Department of Health and Human Services, an estimated \$150 billion in direct and indirect costs were attributed to mental illness in 1996 [1]. Furthermore, major depressive disorder has been identified as the leading cause of disability



in the United States among the population ages 15-44 [9].

By contrast, mental health has been characterized as a “state of successful performance of mental function, resulting in productive activities, fulfilling relationships with other people, and the ability to adapt to change and to cope with adversity” [1]. The World Health Organization (WHO) describes mental health as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity” [10].

Mental health has been identified as one of the leading health indicators in *Healthy People 2010*. Health indicators are important factors that greatly influence the health of the U.S. population. In addition to mental health, the list of indicators includes physical activity, overweight and obesity, tobacco use, substance abuse, responsible sexual behavior, injury and violence, environmental quality, immunization, and access to healthcare [1].

Indiana Epidemiology

Whenever possible, we examined local county-level data to complete the needs assessment. However, in most instances,

we had to rely on state or national datasets and compute estimates for Marion County.

As noted previously, the adult (ages 18 and older) prevalence for mental disorders in the United States is over 26 percent [7]. This estimate translates into over 1.2 million adult Indiana residents, including more than 165,000 people in Marion County, experiencing a mental disorder in any given year [11].

Given that the national prevalence rate for mental illness in children is 20 percent, over 170,000 Indiana children ages 9 to 17 suffer from a mental disorder that causes some form of impairment. In Marion County alone, this number is estimated to be almost 25,000 children [5, 7, 11].

National Survey on Drug Use and Health

The National Survey on Drug Use and Health (NSDUH) collects both nationwide and statewide data on illicit drug, alcohol, and tobacco use, as well as mental health data from the population. The mental health data include instances of both “serious psychological distress”ⁱⁱ and “having at least one major depressive episode”ⁱⁱⁱ[12].

In Indiana, nearly 13 percent of the adult population experienced serious

Table 1 Percentage and Number of Indiana Residents Experiencing Serious Psychological Distress or Having at Least One Major Depressive Episode, by Age Group (National Survey on Drug Use and Health, 2006–2007 Averages)

	Serious Psychological Distress*		Having at Least One Major Depressive Episode**	
	Number	Percentage	Number	Percentage
12-17	N/A	N/A	45,000	8.42%
18-25	140,000	20.33%	74,000	10.72%
26+	454,000	11.45%	336,000	8.46%
Total Adult Population (18+)	594,000	12.77%	410,000	8.80%

Note: N/A = data not available

*Serious Psychological Distress is not defined for any individual under the age of 18.

**Questions were worded differently for adolescents and adults; therefore, the number of individuals ages 12 to 17 was not included in computing the overall prevalence of having at least one major depressive episode.

Source: Substance Abuse and Mental Health Services Administration, Office of Applied Studies, n.d. [12]



psychological distress and almost 9 percent had at least one major depressive episode. U.S. rates were slightly, but statistically significantly, lower than Indiana rates. Numbers and percentages of Hoosiers experiencing serious psychological distress and having at least one major depressive episode are presented in Table 1.

To help put this information into perspective, we compared it to the prevalence of diabetes in Indiana: In 2007, 8.7 percent of adult Hoosiers (410,000 residents) were diagnosed with diabetes. In Marion County, the rate was similar at 9.0 percent (55,780 residents) [13].

Prevalence of Illness Reports

The following prevalence estimates were calculated and published by the Indiana Division of Mental Health and Addiction (DMHA). Estimates are provided for the general population and for people eligible for Hoosier Assurance Plan (HAP) funding, for fiscal year (FY) 2008 [11]:

Serious Mental Illness (SMI)—DMHA estimated that 5.4 percent of adult Hoosiers suffer from an SMI, representing almost 250,000 individuals within the state. Over 34,000 residents with SMI were from Marion County; of those, almost 21,000 were eligible for HAP funding [11].

Serious Emotional Disturbance (SED)—Children and adolescents who have severe mental impairments that greatly affect their lives are classified as having SED. Mental health professionals can assess the social, occupational, and psychological functioning of both adults and children by using the Global Assessment of Functioning (GAF) Scale. Individuals are rated on a scale of 0 to 100, with a score near the bottom meaning lower overall functioning, and near the top being able to function perfectly normally in life with few noticeable problems [5, 14].

Hoosier Assurance Plan (HAP)

The Hoosier Assurance Plan (HAP) is the primary funding system used by the Indiana Family and Social Services Administration's Division of Mental Health and Addiction (DMHA) to pay for mental health and addiction services. DMHA contracts with managed care providers who provide an array of care for individuals who meet diagnostic, functioning level, and income criteria. The managed care providers make a year's care available to all enrollees.

Eligible individuals are at or below the 200 percent federal poverty level.

HAP does not pay 100 percent of the services. Individuals enrolled in the plan are expected to participate in paying for their care based on their financial ability through a sliding fee schedule [145].

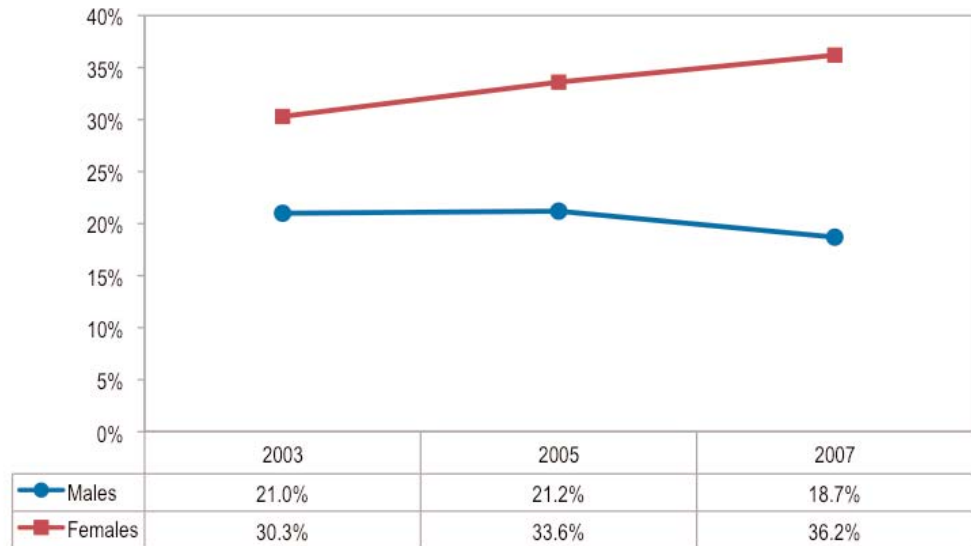
The prevalence rate of children ages 9 to 17 possessing a GAF score lower than 60^w is 10.0 percent, which translates into almost 86,000 children in Indiana, over 12,000 of whom live in Marion County alone. The rate of children with a GAF score lower than 50 is 6.0 percent, which translates into over 51,000 Hoosier children, of whom almost 7,500 children reside in Marion County. Among all the children with SED in Marion County, nearly 8,400 were eligible for HAP funding [5, 11].

Youth Risk Behavior Surveillance System

The link between feelings of sadness/hopelessness and suicide has been well-established [16–18]. The Centers for Disease Control and Prevention's (CDC) biannual Youth Risk Behavior Surveillance System (YRBSS) survey assesses suicide risk in high school children. Data are available for the nation and for individual states, but not at the county level [19].



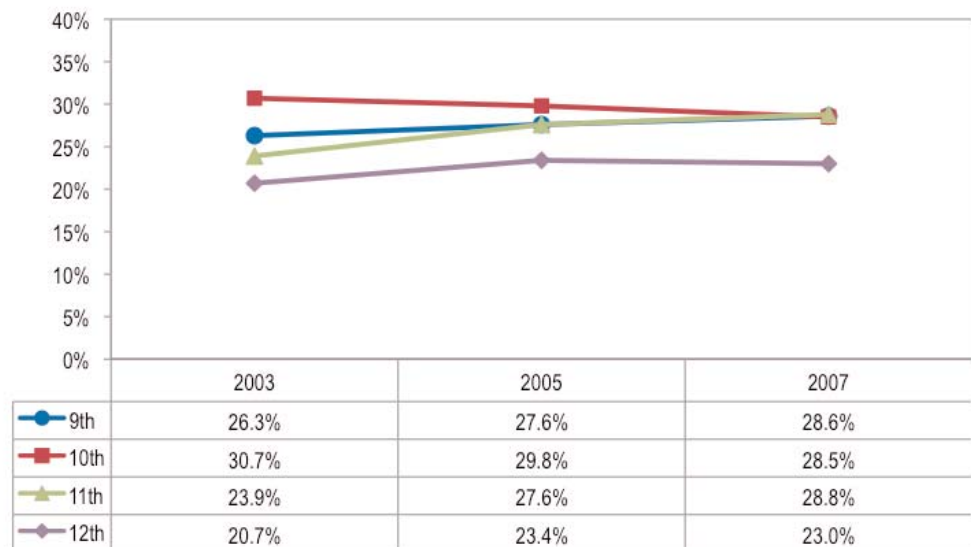
Figure 1 Percentage of Indiana High School Students Who Felt Sad or Hopeless*, by Gender (Youth Risk Behavior Surveillance System, 2003–2007)



* Students in this designation reported feeling sad or hopeless almost every day for two or more weeks in a row, to the extent that they stopped doing some usual activities during the 12 months before the survey.

Source: Centers for Disease Control and Prevention, 2008 [19]

Figure 2 Percentage of Indiana High School Students Who Felt Sad or Hopeless*, by Grade Level (Youth Risk Behavior Surveillance System, 2003–2007)



* Students in this designation reported feeling sad or hopeless almost every day for two or more weeks in a row, to the extent that they stopped doing some usual activities during the 12 months before the survey.

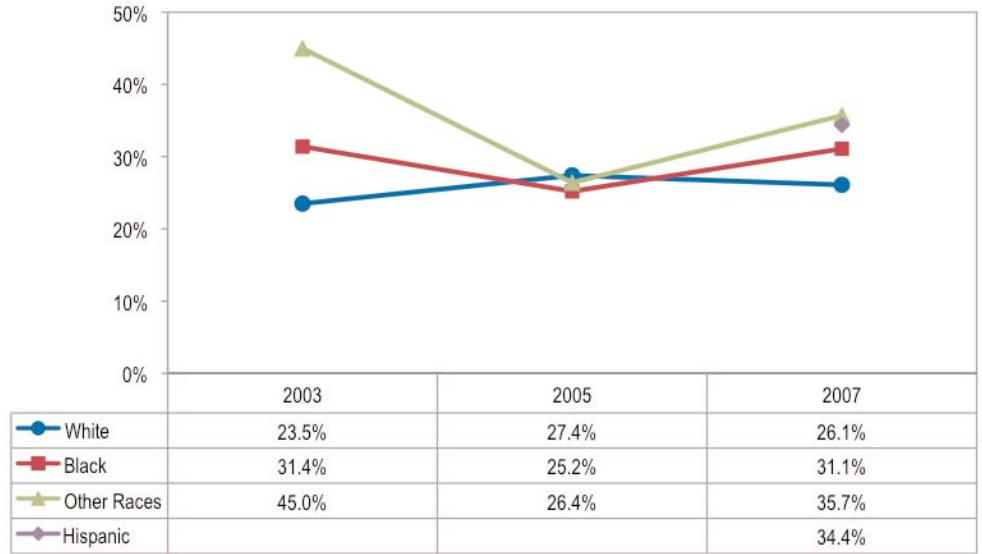
Source: Centers for Disease Control and Prevention, 2008 [19]

Feelings of Sadness or Hopelessness in Students—Based on 2007 findings, the total percentage of students in Indiana who had feelings of sadness or hopelessness was 27.5 percent (95% CI: 24.3–31.0). The prevalence rate was significantly higher for

females, 36.2 percent (95% CI: 32.3–40.3), than for males, 18.7 percent (95% CI: 15.7–22.0) (see Figure 1). No statistically significant differences were found by grade level (see Figure 2) or race/ethnicity (see Figure 3) [19].



Figure 3 Percentage of Indiana High School Students Who Felt Sad or Hopeless*, by Race/Ethnicity (Youth Risk Behavior Surveillance System, 2003–2007)

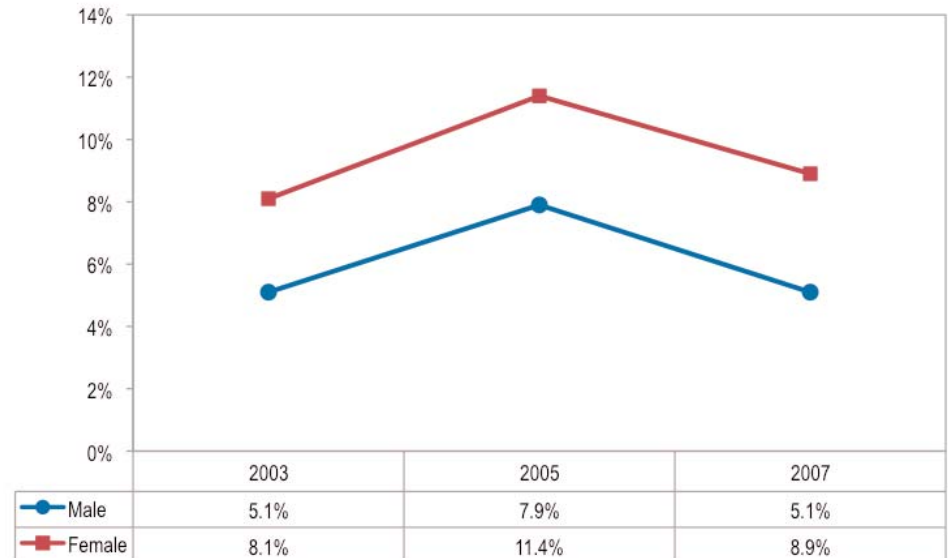


* Students in this designation reported feeling sad or hopeless almost every day for two or more weeks in a row, to the extent that they stopped doing some usual activities during the 12 months before the survey.

Note: Data were not available for Hispanics in 2003 and 2005.

Source: Centers for Disease Control and Prevention, 2008 [19]

Figure 4 Percentage of Indiana Students Who Attempted Suicide One or More Times During the 12 Months Before the Survey, by Gender (Youth Risk Behavior Surveillance System, 2003–2007)



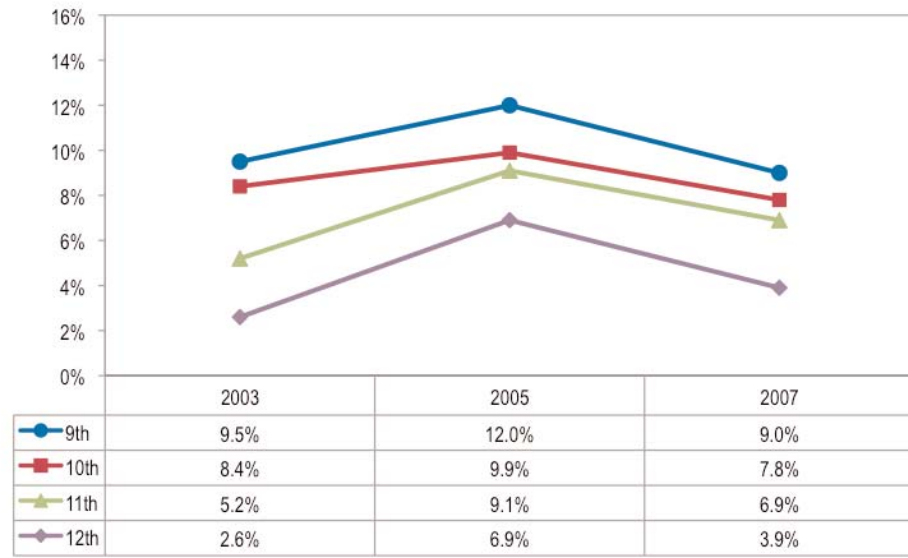
Source: Centers for Disease Control and Prevention, 2008 [19]

Attempted Suicide by Students—Based on results from the 2007 survey, 7.2 percent (95% CI: 5.9–8.9) of high school students in Indiana attempted suicide. No statistical differences were found by gender (see Figure 4) or grade level (see Figure 5).

However, the prevalence rate of students attempting suicide was statistically significantly lower for whites than for other races (excluding blacks) and Hispanics (see Figure 6) [19].

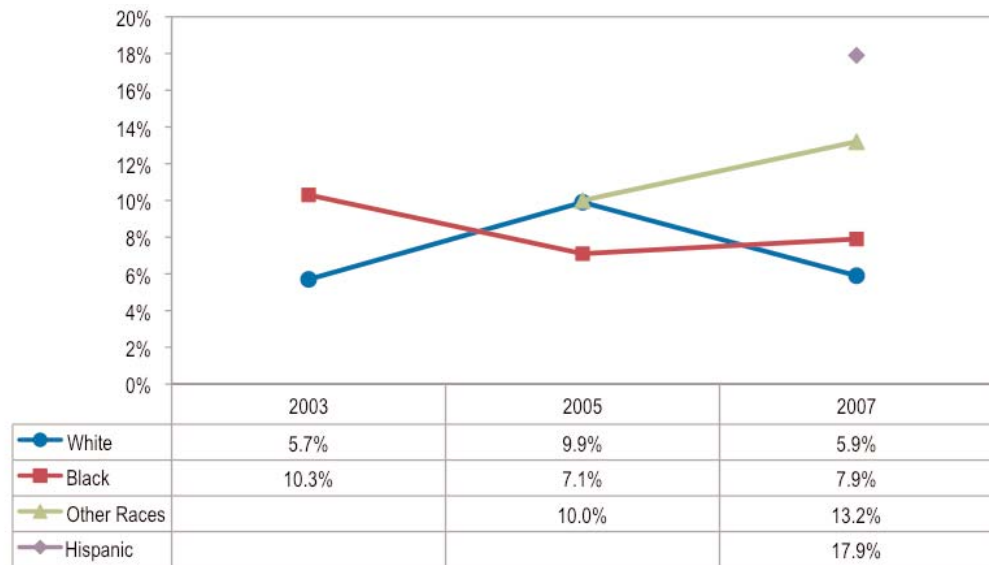


Figure 5 Percentage of Indiana Students Who Attempted Suicide One or More Times During the 12 Months Before the Survey, by Grade Level (Youth Risk Behavior Surveillance System, 2003–2007)



Source: Centers for Disease Control and Prevention, 2008 [19]

Figure 6 Percentage of Indiana Students Who Attempted Suicide One or More Times During the 12 Months Before the Survey, by Race/Ethnicity (Youth Risk Behavior Surveillance System, 2003–2007)



Note: Data were not available for other races in 2003 and for Hispanics in 2003 and 2005.

Source: Centers for Disease Control and Prevention, 2008 [19]

Consequences

As a result of a person possessing a mental illness, many different types of consequences can occur that not only affect the person directly with the illness, but also affect their personal and professional relationships. Social

consequences of serious mental disorders—family disruption, loss of employment and housing—can be calamitous [2]. Without treatment, the consequences of mental illness for the individual and for society can be staggering: unnecessary disability, unemployment, substance abuse,



homelessness, inappropriate incarceration, suicide and wasted lives [20]. Presented in this needs assessment are some of the major consequences that can result from having a mental illness, although other consequences can exist. One of the difficulties raised here is that many of the reported consequences are interrelated to one another and do not necessarily occur in isolation.

Untreated Chronic Illnesses

Many adults living with a mental illness face numerous unforeseen consequences as a result of deinstitutionalization. Topping the list of consequences are barriers to access routine primary healthcare [21]. Many studies have shown higher than average rates of most chronic physical illnesses in people with chronic mental illness [22]. Various studies have been conducted that report on the types and prevalence of chronic diseases that go untreated in populations with mental illness [21]. A study by Koranyi screened 2,090 psychiatric clinic patients and found that 43 percent of this population suffered from one or several physical illnesses and that nearly half of the physical illnesses remained undiagnosed by the referring source [23].

Mortality and Suicide

In 2006, a total of 1,806 deaths were attributable to mental and behavioral disorders^v in Indiana, representing a mortality rate of 26.8 per 100,000 population. In Marion County, 297 deaths occurred because of mental and behavioral disorders. The County's

mortality rate of 36.1 per 100,000 population was significantly higher than the state's rate (see Figures 7 and 8) [24].

The link between mental illness and suicidal ideation, and eventual suicide, is strong [1, 2]. Suicide is the most dreaded complication of major depressive disorders; about 10 to 15 percent of patients formerly hospitalized with depression commit suicide. Men are reported to commit suicide around four and a half as often as women, although women are reported to actually attempt suicide more than men [1, 2].

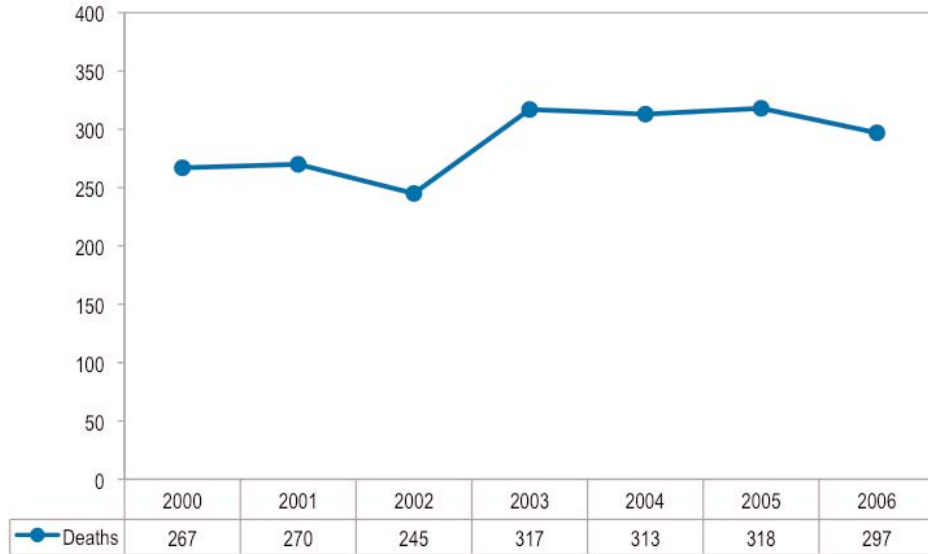
Children, adolescents, and young adults are also at risk for suicide. In fact, the U.S. Department of Health and Human Services posits that over 90 percent of children and adolescents who commit suicide have a mental disorder [2]. In Indiana, suicide ranks as the second leading cause of death for individuals ages 25 to 34, and is the third leading cause of death for people ages 15 to 24 [25].

The total number of deaths attributable to suicide^{vi} in Indiana in 2006 was 822, with the death rate being 13.0 per 100,000 population. In Marion County, 114 deaths from suicide occurred, and the mortality rate was also 13.0 per 100,000 population (see Figures 9 and 10) [24].

In comparison, 952 Hoosiers died from breast cancer^{vii} in 2006, representing an age-adjusted mortality rate of 14.4 per 100,000 population. In Marion County the rate was similar at 14.7 per 100,000 population, attributing 122 deaths to breast cancer [24].

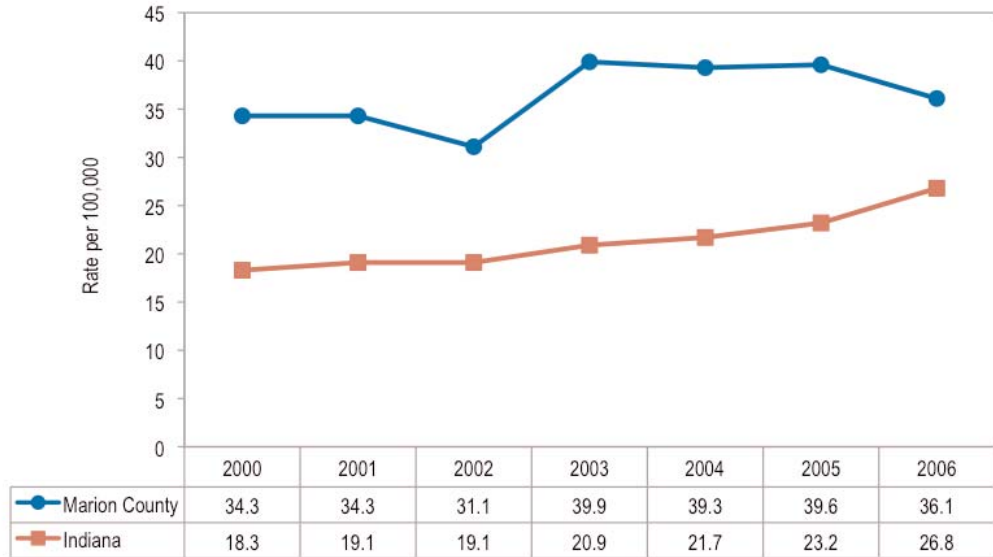


Figure 7 Number of Deaths Attributable to Mental and Behavioral Disorders in Marion County (Mortality Data, 2000–2006)



Source: Centers for Disease Control and Prevention, n.d. [24]

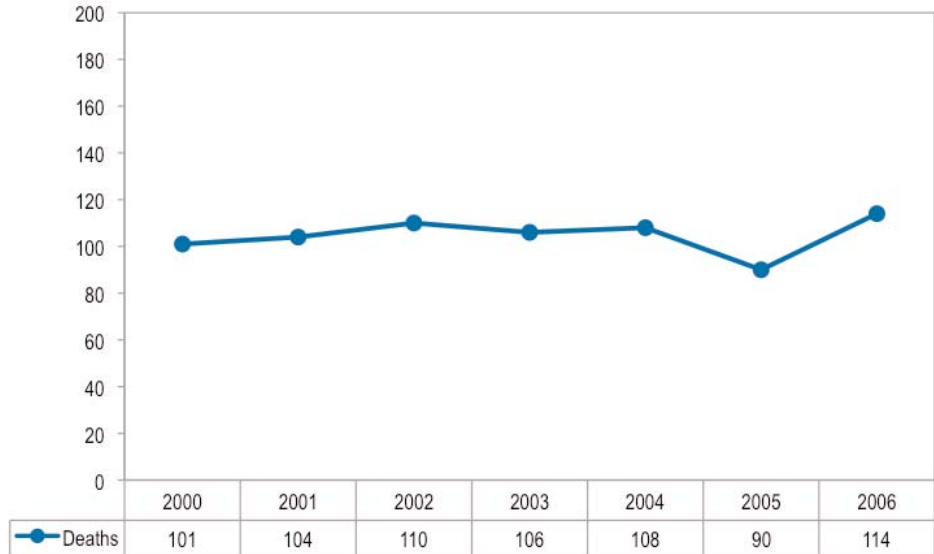
Figure 8 Age-adjusted Mortality Rate Attributable to Mental and Behavioral Disorders, per 100,000 Population, in Marion County and Indiana (Mortality Data, 2000–2006)



Source: Centers for Disease Control and Prevention, n.d. [24]

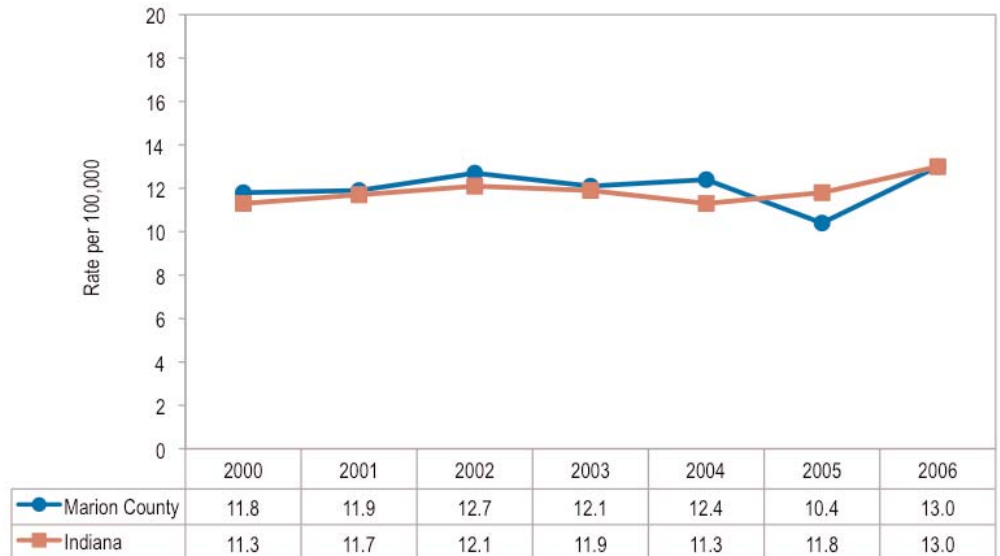


Figure 9 Number of Deaths Attributable to Suicide in Marion County (Mortality Data, 2000–2006)



Source: Centers for Disease Control and Prevention, n.d. [24]

Figure 10 Age-adjusted Mortality Rates for Suicide (Intentional Self-Harm), per 100,000 Population, in Marion County and Indiana (Mortality Data, 2000–2006)



Source: Centers for Disease Control and Prevention, n.d. [24]



Substance Abuse

Mental illness presents a high comorbidity with substance abuse, as people sometimes try to mitigate the effects of their mental illnesses with alcohol and/or drugs. Children and adolescents with mental illnesses often do not become substance abusers until after the mental illness becomes apparent [1].

For a more thorough discussion on substance abuse, see pages 17-26.

Incarceration, Violence, and Victims of Crime

Despite public concerns and attitudes, the risk of violence from those who possess a mental illness is relatively low, although the arrest rate is typically higher for someone who either actually possesses a mental illness or is labeled as having one [2].

According to research, the probability of a person being arrested is nearly 20 percent greater for a person who exhibits signs of a mental disorder than for those who do not; also a high number of incarcerated individuals have a severe mental illness that requires treatment. These data highlight the fact that many of those arrested and subsequently charged with a crime are individuals who required medical treatment prior to their problems with the justice system [26, 27].

When violence does occur, it usually does so when a person is diagnosed with dual disorders, i.e., having both a mental illness and a substance abuse disorder [2].

Not only does having a mental illness result in a person being more likely to face arrest than those who do not, such individuals also can also be the victims of crimes themselves as they belong to a vulnerable population. A study identified that the most frequently cited traumatic

crimes committed against women who suffered from a mental illness were rape and sexual abuse; the most frequent traumatic crimes against men with mental illness were aggravated assault and robbery [28].

Homelessness

It has been suggested that deinstitutionalization, a de facto public mental health system, and a lack of affordable housing have synergistically created circumstances in which people with SMI are overrepresented among those who are chronically homeless [29].

An estimated 20 to 25 percent of those who are currently homeless in the United States also suffer from a mental illness [30]. Additionally, researchers have contended that being homeless may exacerbate the negative effects of mental illness in certain individuals [31].

Stress on Social Relationships

Having a mental illness can impair a person's relationships with family, friends, and co-workers, and can lead to social isolation from these and others [32]. Social isolation can result from stigmatization (see pages 15-16), which results in negative internal or external attitudes toward the person who is battling mental illness. Internal negative attitudes about one's mental illness may lead to self-blame, as well as self-verification of negative life events (also called "self-fulfilling prophecy") [33-35]. Internal doubts about oneself because of a mental illness can lead to problems with personal relationships (e.g., "it's my fault I cannot have friends because I have a mental illness"; "because I have a mental illness and people have a hard time communicating with me, it's my fault"), and ultimately social isolation from others.



Isolation can also occur from fears of being victimized by others; personal displays of unusual behavior; and poor social skills and adjustment [32]. A study by Padgett et al. (2008) using a sample residing in areas of “concentrated disadvantage” found that people with mental illness were regularly in and around poverty, substance abuse, and criminal behavior that further strained any meaningful positive social relationships [32].

Stigma

One of the most negative and pervasive socially induced side effects of possessing a mental illness is stigmatization of the illness, which can either be self-induced or imposed by others [33–35]. The U.S. Department of Health and Human Services (1999) contends that stigma is the most formidable obstacle to future progress in the arena of mental illness and health, and that it is manifested by bias, distrust, stereotyping, fear, embarrassment, anger, and/or avoidance. One of the major reasons for the prevalence of stigma in the nation is a fear of violence from those that have a mental illness, though the actual risk of violence is relatively low [2].

Stigma can create harmful effects on the person suffering from mental illness, including: trying to pretend nothing is wrong (denial); refusing to seek treatment; experiencing rejection by family and friends; dealing with work or school problems or discrimination; having difficulty finding housing; being subjected to physical violence or harassment; and facing inadequate health insurance coverage of mental illnesses [36]. Many of these effects are identical to, or overlap with, the consequences of mental illness (see *Stress on Social Relationships*, pages 14-15).

Mental Health Parity and Addiction Equity Act (MHPAEA) of 2008

Possessing affordable health insurance is a major concern for Americans, as 46.3 million people were uninsured in the U.S. in 2008 [37]. Health insurance for mental illness has not gained as much acceptance by the private insurance industry as general health insurance due to various factors. Private insurers may believe that paying for mental health services is too expensive; many do not offer such insurance, or they focus their plans exclusively on acute care services [2].

The Mental Health Parity Equity Act (MHPA) of 1996 (PL 104–204) was enacted into law so that a “group health plan may not impose annual or lifetime dollar limits on mental health benefits that are less favorable than any such limits imposed on medical surgical benefits” [38]. The underlying meaning of the term “parity” in the context of the law is for mental illness to be seen as any other health problem, and thus to be covered through health insurance the same way [5].

The Mental Health Parity and Addiction Equity Act (MHPAEA) of 2008 was enacted into law in order to provide an extension to MHPA. Among its provisions is the inclusion of coverage of substance abuse disorders that were not written into the original law, so now that mental health generally, and substance abuse disorders specially, are covered under the law. Under MHPAEA, any financial requirements by insurance plans (such as deductibles, copayments, coinsurance, or out of pocket expenses) cannot be any more restrictive than existing medical or surgical plans (see Interim Final Rules Under the Paul Wellstone and Pete Domenici Mental Health Parity and Addiction Equity Act of 2008, 2010).

On March 23, 2010, President Barack Obama signed the “Patient Protection and Affordable Care Act” into law as Public Law (PL) No. 111-148. The Act prohibits discrimination against participants and beneficiaries of a health plan based on their health status, which includes having a mental illness [68]. The Act allows those enrolled in Medicaid with at least two chronic conditions, one condition and risk of developing another, or at least one serious and persistent mental health condition, to designate a healthcare provider as a health home [69].

The Act (PL 111-148) also states that the Mental Health Parity and Addiction Equity Act “shall apply to qualified health plans in the same manner and to the same extent as such section applies to health insurance issuers and group health plans” [68]. Therefore, any health plan is responsible for the same financial requirements and limitations when providing mental health and substance abuse services and needs to comply with the Mental Health Parity and Addiction Equity Act as a group plan would.



Stigma against mental illness still prevails in our society, even though our knowledge of the underlying causes and effects of most mental illnesses have increased significantly [2]. There have been a few proposals on how stigma against mental illness can be lessened, and eventually eliminated, in our society. Increased frequency of contact with someone who has a mental illness may help to reduce stigma, because interacting with the person may cause those who harbor fears to see that, aside from having a mental illness, they are more alike than different [2, 33, 34]. Corrigan et al. (2003) add that those who are more familiar with mental illness are more likely to offer interpersonal help and less likely to avoid people with psychiatric disorders [34].

One of the ways that people can become more familiar with individuals with mental illnesses is through advocacy groups and nonprofits, such as Mental Health America (MHA), the National Alliance for Mental Illness (NAMI), and Knowledge Empowers You (KEY), which provide anti-stigma public announcements and mental illness education services. Another way is through television and film personalities who either directly suffer from (or have a close family member who does) a mental illness. Glenn Close, an American Actress whose sister currently suffers from bipolar disorder, helped to found the nonprofit BringChange2Mind.org, which attempts to educate the public on the effects of mental illness and the stigma attached to it.

Ψ SUBSTANCE ABUSE AND ADDICTION

The U.S. Department of Health and Human Services identified substance abuse as one of the nation's 10 leading health indicators, because it poses a significant public health problem that impacts society, directly and indirectly, on multiple levels. Consequences of alcohol and other drug abuse are manifold and include an increase in morbidity, mortality, crime and other negative social outcomes [1].

Substance abuse refers to a maladaptive pattern of alcohol and other drug use that can lead to significant problems, including [39, 40]:

- Use of alcohol or drugs in hazardous situations; for example, when driving a car or operating machinery;
- Failure to fulfill major obligations at work, school, or home;
- Legal problems, such as arrest for public intoxication or possession of illicit drugs; and
- Persistent or recurrent social problems (e.g., arguments with spouse about substance use or getting into physical fights).

Substance abuse can progress to addiction or dependence.^{viii} Addiction is defined as a chronic, relapsing brain disease that is characterized by compulsive drug seeking and use, despite harmful consequences [41]. Addicted people frequently engage in self-destructive and criminal behavior. Research has confirmed that treatment can help end dependence on addictive drugs and reduce the consequences of addictive drug use on society. While no single approach for substance abuse and addiction treatment exists, comprehensive and carefully tailored treatment works [1].

The terms “co-occurring disorder” and “dual diagnosis” are frequently used

to denote the co-occurrence of mental illness and substance abuse. Research has shown that co-occurring disorders are very common [42]:

- Of all people diagnosed with a mental illness, 29 percent also abuse alcohol and/or drugs.
- Of all people diagnosed with SMI, 50 percent abuse alcohol and/or drugs.
- Of all people who abuse alcohol, 37 percent have at least one SMI.
- Of all people who abuse drugs, 53 percent have at least one SMI.

Indiana Epidemiology

Whenever possible, we examined local county-level data to complete the needs assessment. However, in most instances, we had to rely on state or national datasets and compute estimates for Marion County.

National Survey on Drug Use and Health

The following prevalence rates are population-based estimates from the 2006–2007 National Survey on Drug Use and Health (NSDUH) [12]:

Alcohol—Alcohol is the most frequently used and abused substance. Among Hoosiers ages 12 and older, 50.1 percent (2.6 million residents) drank alcohol in the past month, and 22.3 percent (1.1 million residents) engaged in binge drinking (see Figure 11). Binge drinking was defined as having five or more drinks on the same occasion at least once in the past month. Young adults between the ages of 18 to 25 had the highest rates, with 60.8 percent (419,000 residents) reporting past-month alcohol use and 41.5 percent (286,000 residents) reporting binge drinking. Almost 15 percent (80,000 residents) of Indiana's youth ages 12 to 17 consumed alcoholic beverages in the past month and 9.5 percent engaged in binge drinking (51,000 residents).



Furthermore, 7.3 percent (377,000 residents) of Hoosiers ages 12 and older met the criteria for alcohol abuse or dependence in the past year, and 6.7 percent (349,000 residents) were in need of but did not receive treatment.

Tobacco—About one-third of Indiana’s population (1,740,000 residents) ages 12 and older used a tobacco product in the past month; prevalence rates were highest among 18- to 25-year-olds, at 49.1 percent (338,000 residents), and lowest among 12- to 17-year-olds, at 14.7 percent (79,000 residents). The tobacco product most frequently consumed were cigarettes: 28.0 percent of Hoosiers (1,452,000 residents) ages 12 and older smoked cigarettes in the past month (see Figure 11). Again, highest rates were found among young adults ages 18 to 25, at 43.2 percent (298,000 residents), and lowest rates were observed among youth ages 12 to 17, at 11.8 percent (64,000 residents).

Illicit Drugs^{ix}—An estimated 8.4 percent (437,000 residents) of Hoosiers ages 12 and older used at least one illicit substance in the past month (see Figure 11). The highest rate was found among young adults ages 18 to 25 (20.1 percent or 139,000 residents), followed by young people between 12 and 17 years old (10.5 percent or 57,000 residents). The most commonly used illicit substance was marijuana. Past-month marijuana use was reported in 6.0 percent (312,000 residents) of Indiana’s population ages 12 and older (see Figure 11). An estimated 16.2 percent of 18- to 25-year-olds (112,000 residents) used marijuana in the past month, compared to 7.4 percent of 12- to 17-year-olds (40,000 residents).

Prescription drugs account for the second most commonly abused category of drugs, behind marijuana and ahead of cocaine, heroin, methamphetamine, and

other drugs [43], and the most frequently abused type of prescription medication are pain relievers (opioids) [12]. In Indiana, 6.2 percent (323,000 residents) of the population ages 12 and older reported nonmedical pain reliever use in the past year. The prevalence rate was particularly high among 18- to 25-year-olds, at 15.5 percent (107,000 residents); and 7.7 percent (42,000 residents) of young people between the ages of 12 and 17 reported past-year use.

An estimated 2.2 percent (114,000 residents) of Indiana’s population ages 12 and older used cocaine in the past year. Again, rates were highest among adults ages 18 to 25, at 6.4 percent (44,000 residents). Annual prevalence rates were similar among young people ages 12 to 17 (1.4 percent or 8,000 residents) and individuals ages 26 and older (1.6 percent or 62,000 residents).

Furthermore, 3.0 percent (153,000 residents) of Hoosiers ages 12 and older met the criteria for illicit drug abuse or dependence in the past year, and 2.6 percent (134,000 residents) were in need of but did not receive treatment.

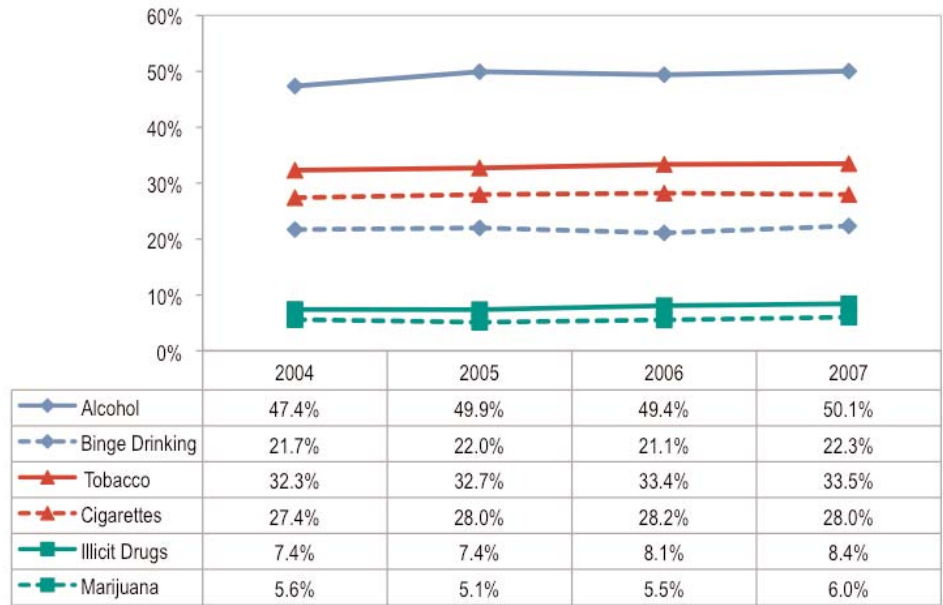
Prevalence of Illness Reports

The following prevalence estimates for chronic addiction in people ages 12 and older and for co-occurring disorder in adults were calculated and published by the Indiana Division of Mental Health and Addiction (DMHA). Estimates are provided for the general population and for people eligible for Hoosier Assurance Plan (HAP) funding, for fiscal year (FY) 2008 [11]:

Chronic Addiction—According to DMHA, the prevalence rates for chronic addiction in Indiana varied by age group. Young adults ages 18 to 25 had the highest rate (22.55 percent), followed by youth ages 12 to 17 (10.69 percent), and then by



Figure 11 Past-Month Use of Alcohol, Binge Drinking, Tobacco, Cigarettes, Illicit Drugs, and Marijuana among Indiana Residents Ages 12 and older (National Survey on Drug Use and Health, 2004–2007)



Source: Substance Abuse and Mental Health Services Administration, Office of Applied Studies, n.d. [12]

adults ages 26 and older (7.49 percent). Based on these prevalence rates, over 63,000 residents in Marion County suffered from chronic addiction, and of these, almost 20,000 were eligible for HAP funding (see Table 2).

Co-occurring Disorder—DMHA estimated that 23.2 percent of Hoosiers with SMI also suffer from chronic addiction. This means that almost 8,000 residents of Marion County were afflicted with co-occurring disorder, over 3,000 of whom were eligible for HAP funding (see Table 2).

Table 2 Number of Residents with Chronic Addiction and Co-occurring Disorder in Marion County and Indiana (Prevalence of Illness Reports, FY 2008)

		Marion County	Indiana
Chronic Addiction	12-17 years	8,574	59,395
	18-25 years	10,352	79,870
	26+ years	44,190	316,599
	Total population	63,116	455,864
	HAP population	19,879	119,100
Co-occurring Disorder	Adults 18+ years	7,963	57,374
	HAP population	3,040	13,857

Source: Indiana Division of Mental Health and Addiction, n.d. [11]



Treatment Episode Data Set

The Treatment Episode Data Set (TEDS) collects information on demographic and substance abuse characteristics of individuals in alcohol- and drug-abuse treatment. Data are collected by treatment episode, i.e., from the beginning of treatment services (admission) to termination of services. In Indiana, TEDS data are limited to information on individuals entering substance abuse treatment who are at or below the 200 percent federal poverty level and receive DMHA-funded treatment (see textbox on Hoosier Assurance Plan, page 3). The following findings are based on 2008 county-level TEDS data, as provided by

the Indiana Family and Social Services Administration [44]:

Treatment Population in Marion County

—In 2008, a total of 4,270 DMHA-funded treatment episodes were recorded in Marion County. Hoosiers in treatment were predominantly male, white, non-Hispanic, and in their mid-twenties to early forties (see Table 3).

The drugs most commonly reported at treatment admission in Marion County were alcohol (54.1 percent), marijuana (48.2 percent) and cocaine/crack (33.4 percent) (see Table 4). In more than half of all treatment episodes (55.7 percent), polysubstance abuse (use of two or more substances) was reported.

Table 3 Demographic Characteristics of Individuals in Substance Abuse Treatment in Marion County (Treatment Episode Data Set, 2008)

		Number	Percentage
Gender	Female	1,668	39.1%
	Male	2,602	60.9%
Age Group	Under 18	211	4.9%
	18-24	799	18.7%
	25-34	1,318	30.9%
	35-44	1,027	24.1%
	45-54	716	16.8%
	55+	199	4.7%
Race	White	2,470	57.9%
	Black	1,615	37.9%
	Other	181	4.2%
Ethnicity	Non-Hispanic	4,142	97.0%
	Hispanic	128	3.0%
Total		4,720	100.0%

Source: Indiana Family and Social Services Administration and Revenue Enhancement and Data, 2009 [44]



Patterns of use differed between Marion County and Indiana:

- Use of alcohol was significantly lower in Marion County compared to the entire state.
- Marijuana use was higher in Marion County from 2003 through 2005, but then started to decline significantly and is now below the state's percentage.
- Cocaine as well as heroin use continued to be higher in Marion County than Indiana.

- Methamphetamine use continued to be lower in Marion County than Indiana.
- Polysubstance abuse was higher in Marion County than in Indiana but has dropped significantly from 2007 to 2008; it is now below the state's percentage.

(For trend information and comparisons between Marion County and Indiana, see Figures 12 and 13.)

Table 4 Number and Percentage of Treatment Episodes with Reported Use of Selected Drugs in Marion County (Treatment Episode Data Set, 2008)

	Number	Percentage
Alcohol	2,311	54.1%
Marijuana	2,059	48.2%
Cocaine	1,428	33.4%
Heroin	346	8.1%
Methadone	22	0.5%
Other Opioids ^a	444	10.4%
PCP	8	0.2%
Hallucinogens	32	0.7%
Methamphetamine	86	2.0%
Other Amphetamines ^b	18	0.4%
Other Stimulants ^c	8	0.2%
Benzodiazepine	189	4.4%
Other Tranquilizers ^d	13	0.3%
Barbiturates	8	0.2%
Other Sedatives/Hypnotics ^e	39	0.9%
Inhalants	9	0.2%
Over-the-counter Medicine	5	0.1%

^aOther opioids except heroin and methadone.

^bOther amphetamines except methamphetamine.

^cOther stimulants except methamphetamine and other amphetamines.

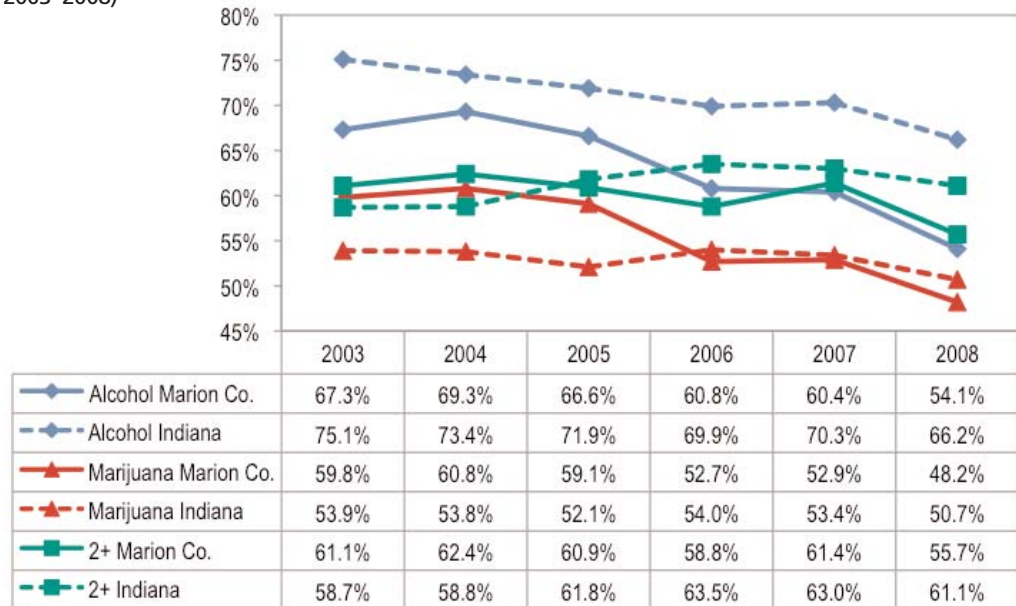
^dOther tranquilizers except benzodiazepine.

^eOther sedatives/hypnotics except barbiturates.

Source: Indiana Family and Social Services Administration and Revenue Enhancement and Data, 2009 [44]

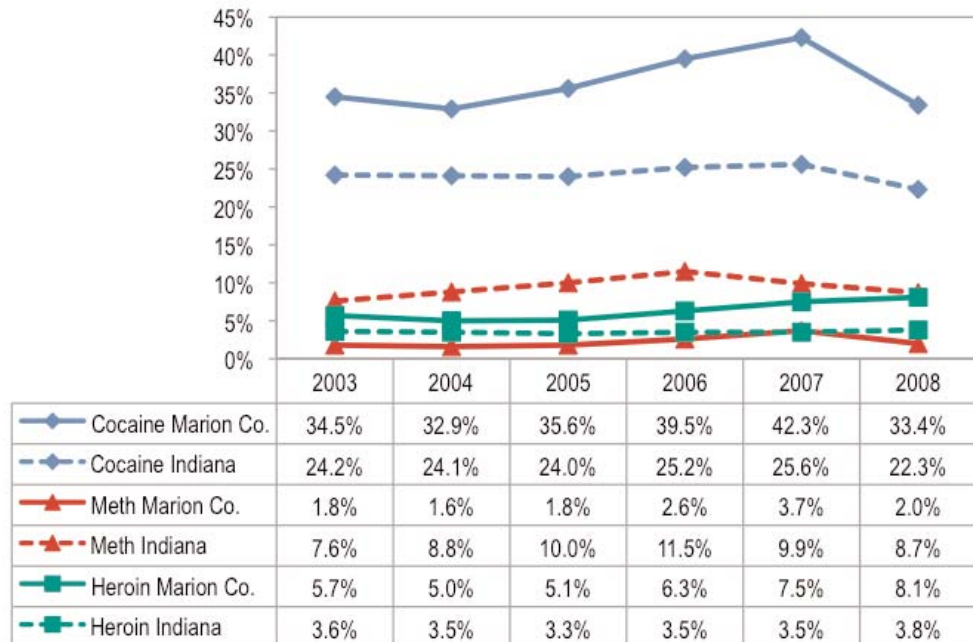


Figure 12 Percentage of Treatment Episodes Reporting Alcohol, Marijuana, and Polysubstance Abuse (Use of Two or More Substances) in Marion County and Indiana (Treatment Episode Data Set, 2003–2008)



Source: Indiana Family and Social Services Administration and Revenue Enhancement and Data, 2009 [44]

Figure 13 Percentage of Treatment Episodes Reporting Cocaine, Methamphetamine, and Heroin Abuse in Marion County and Indiana (Treatment Episode Data Set, 2003–2008)



Source: Indiana Family and Social Services Administration and Revenue Enhancement and Data, 2009 [44]



Consequences

Health Outcomes

Research has shown that the mortality rate among drug users is comparatively high. Some studies suggest that the estimated overall risk of death among individuals who abuse drugs ranges from 10 to 30 times higher than that of non-drug users of the same sex and age [45, 46]. The increased mortality risk can be attributed to diseases and risk behaviors associated with alcohol and other drug use, including:

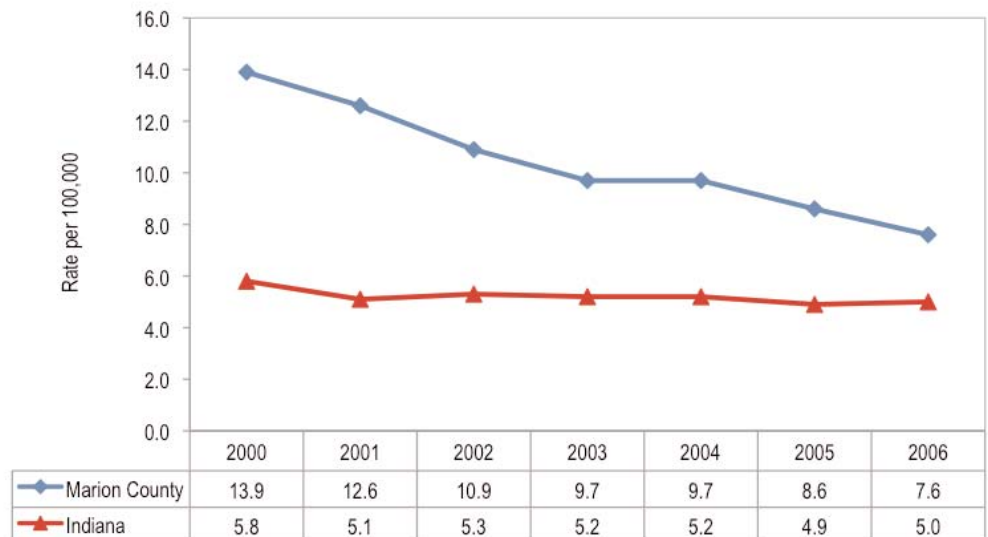
- Alcohol-induced causes of death
- HIV / AIDS and viral hepatitis
- Vehicle crashes and other accidents
- Suicides and homicides
- Drug overdoses
- Tobacco-attributable causes of death

Alcohol-induced Causes of Death^x—In 2006, a total of 66 residents died from alcohol-induced causes in Marion County. This represents an age-adjusted mortality rate of 7.6 per 100,000 population

(Indiana: 5.0 per 100,000 population). Marion County’s alcohol-attributable mortality rate has been significantly higher than the state’s for at least the past seven years. However, while Indiana’s rate remained stable, Marion County’s rate dropped from 2000 through 2006 (see Figure 14) [24].

HIV/AIDS and Viral Hepatitis—Sharing syringes and other equipment for drug injection is a well-known route of HIV transmission, yet injection drug use contributes to the epidemic’s spread far beyond the circle of those who inject. People who have sex with an injection drug user (IDU) also are at risk for infection through the sexual transmission of HIV. Children born to mothers who contracted HIV through sharing needles or having sex with an IDU may become infected as well [47]. By the end of 2008, a total of 3,779 residents were living in Marion County with HIV disease,^{xi} 253 of which had been infected as a result of being an IDU. At the same time, the

Figure 14 Age-adjusted Mortality Rate for Alcohol-induced Causes of Death, per 100,000 Population, in Marion County and Indiana (Mortality Data, 2000–2006)



Source: Centers for Disease Control and Prevention, n.d. [24]



number of Hoosiers living with HIV disease in Indiana was 9,253, and 781 had contracted the disease because of IDU [48]. From 2001 through 2006, the age-adjusted mortality rate for HIV/AIDS^{xii} was significantly higher in Marion County than Indiana. However, rates remained stable at the county and state level throughout the time period (see Figure 15) [24].

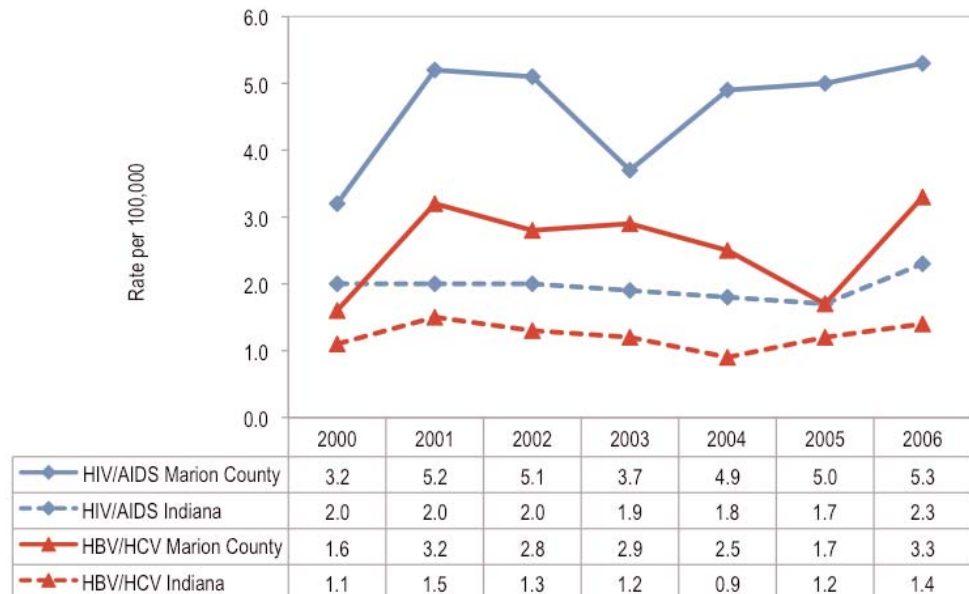
Because Hepatitis B virus (HBV) and Hepatitis C virus (HCV) are transmitted through exposure to infected blood and body fluids, IDUs are also at a high risk for acquiring and transmitting these infections through sharing of needles and drug-preparation equipment. In 2008, Indiana had 29 cases of HBV and 7,066 cases of HCV. Of the 7,066 cases of HCV infection, 1,383 occurred in Marion County. County-level information for HBV infections was not available [48]. The 2006 age-adjusted mortality rate for HBV and HCV infections^{xiii} was 3.3 per 100,000

population in Marion County, significantly higher than the statewide rate of 1.4 per 100,000 population [24]. Even though Marion County's rate rose from 1.6 per 100,000 population in 2000 to 3.3 per 100,000 population in 2006, the increase was statistically not significant.

Vehicle Crashes and Other Accidents—In 2008, there were 28,493 vehicle collisions in Marion County; 1,170 crashes involved alcohol use, 35 of which were deadly. The rate for alcohol-related collisions in Marion County was 1.3 per 1,000 population (Indiana: 1.5 per 1,000 population).

Also, the Centers for Disease Control and Prevention (CDC) estimate that 34 percent of all drowning accidents and 32 percent of all fall injuries can be attributed to alcohol use [49]. From 2000 through 2006, a total of 77 Hoosiers in Marion County drowned^{xiv} and 241 died from injuries caused by falls.^{xv} These fatalities

Figure 15 Age-adjusted Mortality Rates for HIV/AIDS and HBV/HCV, per 100,000 Population, in Marion County and Indiana (Mortality Data, 2000–2006)



Note: HBV/HCV mortality rates for 2000 and 2005 in Marion County are unreliable because they are based on number of deaths less than 20.

Source: Centers for Disease Control and Prevention, n.d. [24]



represent age-adjusted mortality rates of 1.3 per 100,000 population and 4.3 per 100,000 population, respectively (Indiana: 1.1 and 4.4 per 100,000 population, respectively) [24]. Based on the before-mentioned CDC estimates, we can attribute 26 drowning deaths and 77 fatal fall injuries in Marion County to alcohol use.

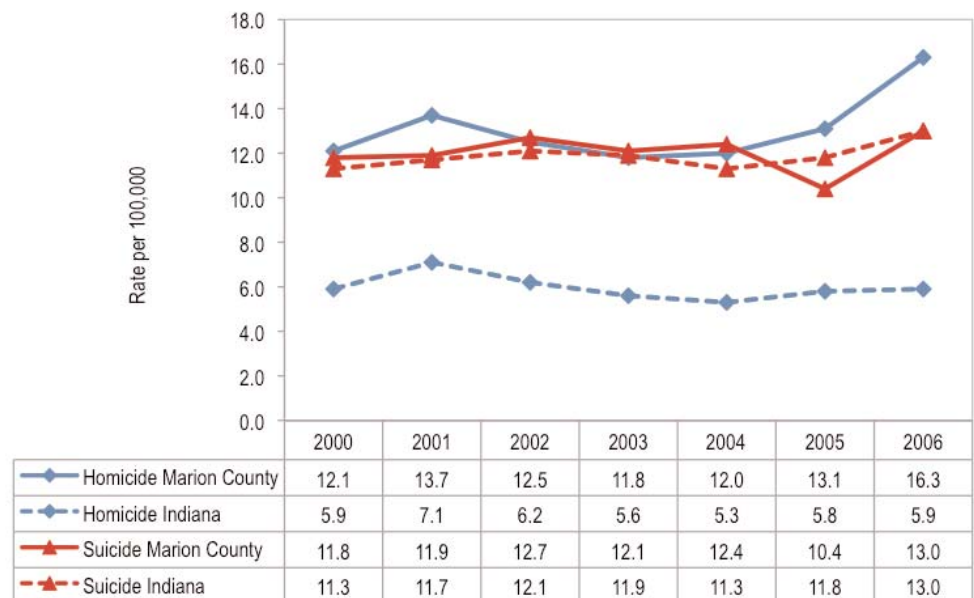
Suicides and Homicides—In 2006, a total of 143 residents of Marion County died by homicide^{xvi} and 114 committed suicide.^{xvii} The age-adjusted mortality rate for homicide was significantly higher in Marion County (16.3 per 100,000 population) compared to the entire state (5.9 per 100,000 population). The age-adjusted mortality rates for suicide were the same: 13.0 per 100,000 population in both Marion County and Indiana (see Figure 16) [24]. According to CDC estimates, 47 percent of homicides and 23 percent of suicides are attributable to alcohol [49]. Therefore, in 2006, 67 homicide deaths and 26 suicide deaths in Marion County can be attributed to alcohol.

Drug Overdoses—Deaths among drug users can have many causes but drug overdoses continue to be among the most frequent reasons [46, 50]. Most drug overdoses involve injection of a substance but overdose fatalities can also occur with other routes of administration [51]. Opiates were the drugs most commonly detected during post-mortem examinations. Polydrug use, specifically, heavy drinking coupled with use of benzodiazepines and amphetamines were identified as risk factors for mortality [46].

From 2002 through 2006, 433 overdose deaths occurred in Marion County; this figure represents one-sixth of the state’s overdose fatalities during the five-year period (2,581 deaths). Statewide the number of overdose deaths has continually increased from 281 in 2002 to 728 in 2006 [52].^{xviii}

Tobacco-attributable Causes of Death—The average annual smoking-attributable number of deaths in Indiana is currently

Figure 16 Age-adjusted Mortality Rates for Homicide (Assault) and Suicide (Intentional Self-Harm), per 100,000 Population, in Marion County and Indiana (Mortality Data, 2000–2006)



Source: Centers for Disease Control and Prevention, n.d. [24]



9,728, representing a mortality rate of 308.9 per 100,000 Hoosiers ages 35 and older [53].

Applying the smoking-attributable mortality rate to the Marion County population ages 35 and older, we estimated that 1,395 deaths were related to tobacco use. (These numbers do not include burn or secondhand smoke deaths.)

Legal Problems

Substance use is associated with a variety of offenses, both violent and nonviolent [54, 55]. The Uniform Crime Reporting Program, a database maintained by the FBI, collects information on arrests for various offenses such as property and violent crimes, prostitution, gambling, alcohol-related offenses, and possession and dealing of illicit drugs [56].

In 2007, a total of 58,513 arrests were made in Marion County, many of them alcohol-related (8,988 arrests).^{xix}The vast majority of arrests for prostitution in Indiana were made in Marion County, and over one-third of arrests for violent crimes occurred also in the County (see Table 5) [56].

Gambling Problem

Problem gambling refers to gambling behavior that causes disruptions in any major area of life. It includes conditions such as pathological or compulsive gambling, i.e., a progressive addiction characterized by an increasing preoccupation with gambling, a need to bet more money more frequently, restlessness or irritability when attempting to stop, "chasing" losses, and loss of control manifested by continuation of the gambling behavior in spite of mounting, serious, negative consequences. It is estimated that as many as four percent of gamblers may develop a gambling problem.

Some studies suggest a relationship between problem gambling and alcohol or other drug abuse; i.e., problem gamblers are more at risk of also being substance abusers, and vice versa [40, 57, 58]. Furthermore, problem gambling is also associated with comorbidity of various psychiatric disorders [40, 57, 58].

Table 5 Number and Rate of Arrests, per 1,000 Population, for Various Offenses in Marion County and Indiana (Uniform Crime Reporting Program, 2007)

		Property Crimes	Violent Crimes	Prostitution	Gambling	Alcohol-related Offenses*	Drug Offenses**	Grand Total***
Marion County	Number of Arrests	7,320	3,507	1,667	128	8,988	5,770	58,513
	Arrest Rate per 1,000	8.5	4.1	1.9	0.1	10.4	6.7	67.6
Indiana	Number of Arrests	34,931	9,127	1,895	155	69,527	29,004	276,051
	Arrest Rate per 1,000	5.5	1.4	0.3	0.0	11.0	4.6	43.5

*Alcohol-related offenses include arrests for DUI, public intoxication, and liquor law violations.

**Drug offenses include arrests for possession and sale/manufacture of controlled substances.

***Grand total consists of all arrests, including arrests that are not listed in the table.

Source: National Archive of Criminal Justice Data, n.d. [56]

Mental health is fundamental to overall health. It is paramount to personal well-being, family relationships, and successful contributions to society [10]. Furthermore, mental illness and substance use disorders both are highly prevalent throughout the nation, and often occur together, creating an even greater burden for the individual, family, and society. Unfortunately, many of those affected still do not receive adequate treatment services, and stigmatization continues to be a challenge.

From a public policy perspective, several strategies can be applied to address issues related to mental health and substance abuse in the community:

Decrease the number of undiagnosed and untreated mental illness and substance use disorders.

Various studies suggest that a large part of the population does not receive treatment for mental disorders [59-61]. The unmet need for treatment, especially among people with SMI, has been a concern for mental health professionals. According to a study by Demyttenaere et al., almost half of the individuals with SMI did not receive treatment [59], and the Substance Abuse and Mental Health Services Administration cited evidence that about two-thirds of people with mental disorders do not seek treatment [62].

Cutting mental health services and funding can result in unintended consequences, including an increase in other healthcare costs. When children and adults living with mental illness cannot or do not get mental health services, they often end up using more healthcare resources, such as emergency rooms. Mental health disorders accounted for almost 4.3 million hospital emergency department visits in 2006 [63].

De-stigmatize mental illness by increasing public awareness.

Historically, the stigma associated with mental illness and substance use disorders has contributed to the inadequate funding available for preventive services and to low insurance reimbursements for treatments. Until stigma is reduced, treatable substance use and mental health problems will continue to go untreated and services will be limited [62].

A supportive policy environment can help to reduce stigma by increasing the public's awareness of these issues. This may be done by launching educational and social marketing campaigns, providing research support, and encouraging mental health parity.

Expand the adoption and use of evidence-based practices.

Evidence-based practices (EBP) are interventions for which there is consistent scientific evidence showing that they improve client outcomes. Effective programs are crucial in treating, reducing, and preventing the occurrence of mental and substance use disorders.

Extensive empirical research demonstrates that several pharmacological and psychosocial interventions are effective in improving the lives of people with severe mental illnesses, but despite this knowledge, "there has been widespread failure to implement EBP in routine mental health settings" [64].

Assertive Community Treatment (ACT) is a cost-effective, coordinated team approach that combines intensive treatment and support services. It is one of the best-researched mental health treatment models, and has been found to substantially reduce psychiatric hospital use, increase housing stability, and improve symptoms and subjective quality of life [65].



The ACT Center of Indiana was established in 2001 and is funded, in part, by the Division of Mental Health and Addiction. Currently, there are nine ACT teams in the Greater Indianapolis area, with an estimated 630 enrolled clients for the fourth quarter of FY 2009 [66].

Also, the Substance Abuse and Mental Health Services Administration provides resources to help identify interventions that have been proven effective (see National Registry of Evidence-based Programs and Practices [NREPP] [67]).

1. U.S. Department of Health and Human Services. (2000). *Healthy People 2010. With understanding and improving health and objectives for improving health* (2nd ed.). Washington, DC: U.S. Government Printing Office.
2. U.S. Department of Health and Human Services. (1999). *Mental health: A report of the Surgeon General*. U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institutes of Health, National Institute of Mental Health.: Rockville, MD.
3. Substance Abuse and Mental Health Services Administration. (2002). *The NHSDA report: Serious mental illness among adults*. Retrieved February 4, 2010, from <http://www.oas.samhsa.gov/2k2/SMI/SMI.htm>
4. Lopez, A. D., Mathers, C. D., Ezzati, M., Jamison, D. T., & Murray, C. J. L. (2006). *Global burden of disease and risk factors*. World Health Organization.
5. United Way of Central Indiana. (2008). *United Way of Central Indiana community assessment 2008*. Retrieved February 2, 2010, from http://www.uwci.org/upload/documents/CA_Chapter_05_Health.pdf
6. Taylor, E., Chadwick, O., Heptinstall, E., & Danckaerts, M. (1996). Hyperactivity and conduct problems as risk factors for adolescent development. *Journal of the American Academy of Child and Adolescent Psychiatry, 35*, 1213-1226.
7. National Institute of Mental Health. (n.d.). *Statistics*. Retrieved February 3, 2010, from <http://www.nimh.nih.gov/health/topics/statistics/index.shtml>
8. Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry, 62*(6), 593-602.
9. National Institute of Mental Health (2009). *The Numbers Count: Mental Disorders in America*. Retrieved April 7, 2010, from <http://www.nimh.nih.gov/health/publications/the-numbers-count-mental-disorders-in-america/index.shtml>
10. World Health Organization. (2008). *Mental Health Gap Action Programme*. Retrieved February 8, 2010, from http://www.who.int/mental_health/mhgap_final_english.pdf
11. Indiana Division of Mental Health and Addiction and Family and Social Services Administration. (n.d.). *Prevalence of illness reports*. Retrieved January 22, 2010, from <http://www.in.gov/fssa/dmha/7368.htm>
12. Substance Abuse and Mental Health Services Administration, Office of Applied Studies. (n.d.). *National Survey on Drug Use and Health (NSDUH)*. Retrieved January 13, 2010, from: <https://nsduhweb.rti.org/>
13. Centers for Disease Control and Prevention: National Diabetes Surveillance System. (n.d.) *Indiana—Percentage of Adults With Diagnosed Diabetes, 1994-2008*. Retrieved April 7, 2010, from <http://apps.nccd.cdc.gov/ddtstrs/Index.aspx?stateid=18&state=Indiana&cat=prevalence&Data=data&view=To&trend=prevalence&id=1>
14. American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders (DSM-IV)* (4th ed.). Washington, D.C.: American Psychiatric Association.
15. Indiana Division of Mental Health and Addiction and Family and Social Services Administration. (n.d.). *Hoosier Assurance Plan*. Retrieved January 25, 2010, from <http://www.in.gov/fssa/dmha/4409.htm>
16. Beck, A. T., Steer, R. A., Kovacs, M., & Garrison, B. (1985). Hopelessness and eventual suicide: a 10-year prospective study of patients hospitalized with suicidal ideation. *American Journal of Psychiatry, 142*(5), 559-63.
17. Beck, A.T. & Steer, R.A. (1989). Clinical predictors of eventual suicide: a 5- to 10-year prospective study of suicide attempters. *Journal of Affective Disorders, 17*(3), 203-9.
18. Joiner, T. E., Jr., Van Orden, K. A., Witte, T. K., Selby, E. A., Ribeiro, J. D., Lewis, R., et al. (2009). Main predictions of the interpersonal-psychological theory of suicidal behavior: empirical tests in two samples of young adults. *Journal of Abnormal Psychology, 118*(3), 634-46.
19. Centers for Disease Control and Prevention. (2008). *Youth Risk Behavior Surveillance System*. Retrieved February 4, 2010, from: <http://apps.nccd.cdc.gov/yrbss/>
20. National Alliance for Mental Illness. (n.d.). *Mental illnesses*. Retrieved February 4, 2010, from: <http://www.nami.org/>
21. Boardman, J. (2006). Health access and integration for adults with serious and persistent mental illness. *Families, Systems, & Health, 24*(1), 3-18.
22. Gallagher, S., Brooks, A., & Penn, P. (2006). Chronic illness, pain and health behaviors of community behavioral health clients. *Psychological Services, 3*(4), 215-226.



23. Koranyi, E.K. (1979). Morbidity and rate of undiagnosed physical illnesses in a psychiatric clinic population. *Archives of General Psychiatry*, 36(4), 414-9.
24. Centers for Disease Control and Prevention. (n.d.). *CDC Wonder*. Retrieved January 29, 2010, from: <http://wonder.cdc.gov/cmfc-icd10.html>
25. Centers for Disease Control and Prevention and National Center for Injury Prevention and Control. (n.d.). *WISQARS Leading Causes of Death Reports, 1999 – 2006*. Retrieved February 2, 2010, from: <http://webappa.cdc.gov/sasweb/ncipc/leadcaus10.html>
26. Teplin, L.A. (1983). The criminalization of the mentally ill: speculation in search of data. *Psychological Bulletin*, 94(1), 54-67.
27. Teplin, L.A. (1984). Criminalizing mental disorder. The comparative arrest rate of the mentally ill. *The American Psychologist*, 39(7), 794-803.
28. Marley, J., & Buila, S. (1999). When violence happens to people with mental illness: Disclosing victimization. *American Journal of Orthopsychiatry*, 69(3), 398-402.
29. Lincoln, A., Plachta-Elliott, S., & Espejo, D. (2009). Coming in: An examination of people with co-occurring substance use and serious mental illness exiting chronic homelessness. *American Journal of Orthopsychiatry*, 79(2), 236-243.
30. Substance Abuse and Mental Health Services Administration, Center for Mental Health Services. (n.d.). *Homelessness*. Retrieved February 3, 2010, from <http://mentalhealth.samhsa.gov/cmhs/Homelessness/>
31. Stein, J., & Gelberg, L. (1995). Homeless men and women: Differential associations among substance abuse, psychosocial factors, and severity of homelessness. *Experimental and Clinical Psychopharmacology*, 3(1), 75-86.
32. Padgett, D., Henwood, B., Abrams, C., & Drake, R. (2008). Social relationships among persons who have experienced serious mental illness, substance abuse, and homelessness: Implications for recovery. *American Journal of Orthopsychiatry*, 78(3), 333-339.
33. Bos, A. E., Kanner, D., Muris, P., Janssen, B., & Mayer, B. (2009). Mental illness stigma and disclosure: consequences of coming out of the closet. *Issues in Mental Health Nursing*, 30(8), 509-13.
34. Corrigan, P., Markowitz, F. E., Watson, A., Rowan, D., & Kubiak, M. A. (2003). An attribution model of public discrimination towards persons with mental illness. *Journal of Health and Social Behavior*, 44(2), 162-79.
35. Wright, E.R., Gronfein, W.P., & Owens, T.J. (2000). Deinstitutionalization, social rejection, and the self-esteem of former mental patients. *Journal of Health and Social Behavior*, 41(1), 68-90.
36. Mayo Foundation for Medical Education and Research. (2009). *Mental health: Overcoming the stigma of mental illness*. Retrieved February 4, 2010, from <http://www.mayoclinic.com/health/mental-health/MH00076>
37. DeNavas-Walt, C., Proctor, B. D., & Smith, J. C. (2009). *Income, poverty, and health insurance coverage in the United States: 2008*. Washington, DC.
38. U.S. Department of Health and Human Service, Centers for Medicare and Medicaid Services. (2010, January 12). *The Mental Health Parity and Addiction Equity Act*. Retrieved February 2, 2010, from http://www.cms.hhs.gov/HealthInsReformforConsume/04_TheMentalHealthParityAct.asp#TopOfPage
39. Indiana Prevention Resource Center and Indiana University Bloomington. (n.d.). *DSM-IV substance abuse criteria*. Retrieved January 20, 2010, from <http://www.sis.indiana.edu/DSM-IV-Criteria.aspx>
40. Vitaro, F., Ferland, F., Jacques, C., & Ladouceur, R. (1998). Gambling, substance use, and impulsivity during adolescence. *Psychology of Addictive Behaviors*, 12, 185-194.
41. National Institute on Drug Abuse. (2008). *The science of addiction*. Retrieved January 20, 2010, from <http://www.nida.nih.gov/scienceofaddiction/sciofaddiction.pdf>
42. National Alliance on Mental Illness. (2003). *Dual diagnosis and integrated treatment of mental illness and substance abuse disorder*. Retrieved January 20, 2010, from http://www.nami.org/Template.cfm?Section=By_Illness&Template=/TaggedPage/TaggedPageDisplay.cfm&TPLID=54&ContentID=23049
43. Office of National Drug Control Policy. (n.d.). *Prescription drugs*. Retrieved January 13, 2010, from http://www.whitehousedrugpolicy.gov/drugfact/prescrptn_drugs/index.html
44. Indiana Family and Social Services Administration and Revenue Enhancement and Data (2009). *Substance abuse population by county/TEDS data, 2008*. Indiana Family and Social Services Administration: Indianapolis, IN.
45. Bargagli, A. M., Sperati, A., Davoli, M., Forastiere, F., & Perucci, C. A. (2001). Mortality among problem drug users in Rome: an 18-year follow-up study, 1980-97. *Addiction*, 96(10), 1455-1463.



46. Gossop, M., Stewart, D., Treacy, S., & Marsden, J. (2002). A prospective study of mortality among drug misusers during a 4-year period after seeking treatment. *Addiction*, 97(1), 39-47.
47. Centers for Disease Control and Prevention. (2002). *Drug-associated HIV transmission continues in the United States*. Retrieved January 29, 2010, from <http://www.cdc.gov/hiv/resources/factsheets/idu.htm>
48. Indiana State Department of Health. (n.d.). *Spotlight on HIV/STD/Viral Hepatitis for 2008*. Retrieved January 29, 2010, from <http://www.in.gov/isdh/24407.htm>
49. Centers for Disease Control and Prevention. (2004). *Alcohol-Related Disease Impact (ARDI)*. Retrieved February 1, 2010, from <https://apps.nccd.cdc.gov/ardi>
50. Frischer, M., Bloor, M., Goldberg, D., Clark, J., Green, S., & McKeganey, N. (1993). Mortality among injecting drug users: a critical reappraisal. *British Medical Journal*, 47(1), 59.
51. Darke, S. & Ross, J. (2000). Fatal heroin overdoses resulting from non-injecting routes of administration, NSW, Australia, 1992-1996. *Addiction*, 95(4), 569-573.
52. Indiana State Department of Health, Epidemiology Resource Center, Data Analysis Team. (2009). *Overdose deaths in Indiana*. Indianapolis, IN: Indiana State Department of Health.
53. Centers for Disease Control and Prevention. (n.d.). *State Tobacco Activities Tracking and Evaluation (STATE) System*. Retrieved February 2, 2010, from http://apps.nccd.cdc.gov/statesystem/statehilite.aspx?dir=epi_report&ucName=UCProfileRpt_2007&state=IN&year=2008&outputtype=htmlreport508
54. Dawkins, M.P. (1997). Drug use and violent crime among adolescents. *Adolescence*, 32(126), 395.
55. Fergusson, D.M. & Horwood, L.J. (2000). Alcohol abuse and crime: a fixed-effects regression analysis. *Addiction*, 95(10), 1525.
56. National Archive of Criminal Justice Data, Inter-university Consortium for Political and Social Research, and University of Michigan. (n.d.). *Uniform Crime Reporting Program*. Retrieved February 2, 2010, from <http://www.icpsr.umich.edu/NACJD/>
57. Kausch, O. (2003). Patterns of substance abuse among treatment-seeking pathological gamblers. *Journal of Substance Abuse Treatment*, 25(4), 263-270.
58. Petry, N.M., Stinson, F.S., & Grant, B.F. (2005). Comorbidity of DSM-IV pathological gambling and other psychiatric disorders: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Journal of Clinical Psychiatry*, 66(5), 564-574.
59. Demyttenaere, K., Bruffaerts, R., Posada-Villa, J., Gasquet, I., Kovess, V., Lepine, J. P., et al. (2004). Prevalence, severity, and unmet need for treatment of mental disorders in the World Health Organization World Mental Health Surveys. *JAMA: the journal of the American Medical Association*, 291(21), 2581.
60. Kessler, R. C., Berglund, P. A., Bruce, M. L., Koch, J. R., Laska, E. M., Leaf, P. J., et al. (2001). The prevalence and correlates of untreated serious mental illness. *Health Services Research*, 36(6 Pt 1), 987.
61. Bijl, R. V., de Graaf, R., Hiripi, E., Kessler, R. C., Kohn, R., Offord, D. R., et al. (2003). The prevalence of treated and untreated mental disorders in five countries. *Health Affairs*, 22(3), 122.
62. Substance Abuse and Mental Health Services Administration, National Mental Health Information Center. (n.d.). *National strategy for suicide prevention: Goals and objectives for action*. Retrieved February 12, 2010, from <http://mentalhealth.samhsa.gov/publications/allpubs/sma01-3517/ch3.asp>
63. Centers for Disease Control and Prevention, National Center for Health Statistics. (2008). *National Hospital Ambulatory Medical Care Survey: 2006 Emergency Department Summary*. Retrieved February 12, 2010, from <http://www.cdc.gov/nchs/data/nhsr/nhsr007.pdf>
64. Torrey, W. C., Drake, R. E., Dixon, L., Burns, B. J., Flynn, L., Rush, A. J., et al. (2001). Implementing evidence-based practices for persons with severe mental illnesses. *Psychiatric Services*, 52(1), 45.
65. Bond, G. R., Drake, R. E., Mueser, K. T., & Latimer, E. (2001). Assertive community treatment for people with severe mental illness: critical ingredients and impact on patients. *Disease Management and Health Outcomes*, 9(3), 141-159.
66. Clendenning, D., Research Coordinator, Indiana University Center for Health Policy. Personal Communication. February 19, 2010.
67. Substance Abuse and Mental Health Services Administration. (n.d.). *National Registry of Evidence-based Programs and Practices (NREPP)*. Retrieved February 11, 2010, from: <http://www.nrepp.samhsa.gov/>
68. Patient Protection and Affordable Care Act. (2010, March 23). Public Law No. 111-148.
69. Kaiser Family Foundation. (2010). *Summary of new health reform law*. Retrieved April 16, 2010, from <http://www.kff.org/healthreform/8061.cfm>



ⁱThe Diagnostic and Statistical Manual of Mental Disorders – Fourth Edition (DSM-IV) is the leading classification manual for mental disorders and illnesses (American Psychiatric Association, 1994). A later text-revised edition was also released and is referred to as the DSM-IV-TR (American Psychiatric Association, 2000).

ⁱⁱSerious psychological distress is defined as having a score of 13 or higher (scores range from 0 to 24) on the K-6 self-report scale for mental illness. The instrument asks questions about how the subject has felt about themselves during the past month, e.g., nervous, restless, worthless, etc. The scale was developed and validated for adults ages 18 and older; hence, no data were collected for children in Indiana.

ⁱⁱⁱThe category for “having at least one major depressive episode” is defined in the DSM-IV as “a period of at least 2 weeks during which there is either depressed mood or the loss of interest or pleasure in nearly all activities. In children and adolescents, the mood may be irritable rather than sad.”

^{iv}A GAF score of 60-51 in children indicates moderate symptoms OR any moderate difficulty in social, occupational, or school functioning, while a score of 50-41 indicates serious symptoms OR any serious impairment in social, occupational, or school functioning.

^vMental and behavioral causes of death include ICD-10 codes F01-F99 (Mental and Behavioral Disorders).

^{vi}Suicide mortality includes ICD-10 codes X60-X84 (Intentional self-harm).

^{vii}Breast cancer deaths include the following ICD-10 codes: C50.0 (Nipple and areola), C50.1 (Central portion of breast), C50.2 (Upper-inner quadrant of breast), C50.3 (Lower-inner quadrant of breast), C50.4 (Upper-outer quadrant of breast), C50.5 (Lower-outer quadrant of breast), C50.6 (Axillary tail of breast), C50.8 (Overlapping lesion of breast), C50.9 (Breast, unspecified), D05.0 (Lobular carcinoma in situ), D05.1 (Intraductal carcinoma in situ), D05.7 (Other carcinoma in situ of breast), D05.9 (Carcinoma in situ of breast, unspecified), D24 (Benign neoplasm of breast), and D48.6 (Breast).

^{viii}The terms “addiction” and “dependence” were used interchangeably throughout this report.

^{ix}Illicit drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically.

^xAlcohol-induced causes of death include the following ICD-10 codes: E24.4 (Alcohol-induced pseudo-Cushing's syndrome), F10.0 (Mental and behavioral disorders due to use of alcohol, acute intoxication), F10.1 (Mental and behavioral disorders due to use of alcohol, harmful use), F10.2 (Mental and behavioral disorders due to use of alcohol, dependence syndrome), F10.3 (Mental and behavioral disorders due to use of alcohol, withdrawal state), F10.4 (Mental and behavioral disorders due to use of alcohol, withdrawal state with delirium), F10.5 (Mental and behavioral disorders due to use of alcohol, psychotic disorder), F10.6 (Mental and behavioral disorders due to use of alcohol, amnesic syndrome), F10.7 (Mental and behavioral disorders due to use of alcohol, residual and late-onset psychotic disorder), F10.8 (Mental and behavioral disorders due to use of alcohol, other mental and behavioral disorders), F10.9 (Mental and behavioral disorders due to use of alcohol, unspecified mental and behavioral disorder), G31.2 (Degeneration of nervous system due to alcohol), G62.1 (Alcoholic polyneuropathy), G72.1 (Alcoholic myopathy),

142.6 (Alcoholic cardiomyopathy), K29.2 (Alcoholic gastritis), K70.0 (Alcoholic fatty liver), K70.1 (Alcoholic hepatitis), K70.2 (Alcoholic fibrosis and sclerosis of liver), K70.3 (Alcoholic cirrhosis of liver), K70.4 (Alcoholic hepatic failure), K70.9 (Alcoholic liver disease, unspecified), K86.0 (Alcohol-induced chronic pancreatitis), R78.0 (Finding of alcohol in blood), X45 (Accidental poisoning by and exposure to alcohol), X65 (Intentional self-poisoning by and exposure to alcohol), and Y15 (Poisoning by and exposure to alcohol, undetermined intent).

^{xi}HIV disease includes both HIV infections and AIDS cases.

^{xii}HIV/AIDS mortality includes ICD-10 codes B20-B24 (Human immunodeficiency virus [HIV] disease).

^{xiii}HBV/HCV mortality includes the following ICD-10 codes: B16.0 (Acute hepatitis B with delta-agent [co-infection] with hepatic coma), B16.1 (Acute hepatitis B with delta-agent [co-infection] without hepatic coma), B16.2 (Acute hepatitis B without delta-agent with hepatic coma), B16.9 (Acute hepatitis B without delta-agent and without hepatic coma), B17.0 (Acute delta-[super]infection of hepatitis B carrier), B17.1 (Acute hepatitis C), B18.0 (Chronic viral hepatitis B with delta-agent), B18.1 (Chronic viral hepatitis B without delta-agent), and B18.2 (Chronic viral hepatitis C).

^{xiv}Drowning mortality includes the following ICD-10 codes: V90.0 (Accident to watercraft causing drowning and submersion, merchant ship), V90.1 (Accident to watercraft causing drowning and submersion, passenger ship, ferry-boat, or liner), V90.2 (Accident to watercraft causing drowning and submersion, fishing boat), V90.3 (Accident to watercraft causing drowning and submersion, other powered watercraft, hovercraft [on open water], or jet skis), V90.4 (Accident to watercraft causing drowning and submersion, sailboat or yacht), V90.5 (Accident to watercraft causing drowning and submersion, canoe or kayak), V90.6 (Accident to watercraft causing drowning and submersion, inflatable craft [non-powered]), V90.7 (Accident to watercraft causing drowning and submersion, water-skis), V90.8 (Accident to watercraft causing drowning and submersion, other unpowered watercraft, surf-board, or windsurfer), V90.9 (Accident to watercraft causing drowning and submersion, unspecified watercraft, boat NOS, ship NOS, or watercraft NOS), V92.0 (Water-transport-related drowning and submersion without accident to watercraft, merchant ship), V92.1 (Water-transport-related drowning and submersion without accident to watercraft, passenger ship, ferry-boat, or liner), V92.2 (Water-transport-related drowning and submersion without accident to watercraft, fishing boat), V92.3 (Water-transport-related drowning and submersion without accident to watercraft, other powered watercraft, hovercraft [on open water], or jet skis), V92.4 (Water-transport-related drowning and submersion without accident to watercraft, sailboat or yacht), V92.5 (Water-transport-related drowning and submersion without accident to watercraft, canoe or kayak), V92.6 (Water-transport-related drowning and submersion without accident to watercraft, inflatable craft [nonpowered]), V92.7 (Water-transport-related drowning and submersion without accident to watercraft, water-skis), V92.8 (Water-transport-related drowning and submersion without accident to watercraft, other unpowered watercraft, surf-board, or windsurfer), V92.9 (Water-transport-related drowning and submersion without accident to watercraft, unspecified watercraft, boat NOS, ship NOS, or watercraft NOS), W65 (Drowning and submersion while in bath-tub), W66 (Drowning and submersion following fall into bath-tub), W67 (Drowning and submersion while in swimming-pool), W68 (Drowning and submersion following fall into swimming-pool), W69 (Drowning



and submersion while in natural water), W70 (Drowning and submersion following fall into natural water), W73 (Other specified drowning and submersion), and W74 (Unspecified drowning and submersion).

^{xv}Fall injuries mortality includes the following ICD-10 codes: W00 (Fall on same level involving ice and snow), W01 (Fall on same level from slipping, tripping and stumbling), W02 (Fall involving ice-skates, skis, roller-skates or skateboards), W03 (Other fall on same level due to collision with, or pushing by, another person), W04 (Fall while being carried or supported by other persons), W05 (Fall involving wheelchair), W06 (Fall involving bed), W07 (Fall involving chair), W08 (Fall involving other furniture), W09 (Fall involving playground equipment), W10 (Fall on and from stairs and steps), W11 (Fall on and from ladder), W12 (Fall on and from scaffolding), W13 (Fall from, out of or through building or structure), W14 (Fall from tree), W15 (Fall from cliff), W16 (Diving or jumping into water causing injury other than drowning or submersion), W17 (Other fall from one level to another), W18 (Other fall on same level), and W19 (Unspecified fall).

^{xvi}Homicide mortality includes ICD-10 codes X85-Y09 (Assault).

^{xvii}Suicide mortality includes ICD-10 codes X60-X84 (Intentional self-harm).

^{xviii}Dataset contains number of deaths due to: Accidental poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics; Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not

elsewhere classified; Accidental poisoning by and exposure to narcotics and psychodysleptics, not elsewhere classified; Accidental poisoning by and exposure to other drugs acting on the autonomic nervous system; Accidental poisoning by and exposure to other and unspecified drugs, medicaments and biological substances; Intentional self-poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics; Intentional self-poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified; Intentional self-poisoning by and exposure to narcotics and psychodysleptics, not elsewhere classified; Intentional self-poisoning by and exposure to other drugs acting on the autonomic nervous system; Intentional self-poisoning by and exposure to other and unspecified drugs, medicaments and biological substances; Assault by drugs, medicaments and biological substances; Poisoning by and exposure to nonopioid analgesics, antipyretics and antirheumatics, undetermined intent; Poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified, undetermined intent; Poisoning by and exposure to narcotics and psychodysleptics not elsewhere classified, undetermined intent; Poisoning by and exposure to other drugs acting on the autonomic nervous system, undetermined intent; and Poisoning by and exposure to other and unspecified drugs, medicaments and biological substances, undetermined intent.

^{xvix}Alcohol-related arrests include arrests for driving under the influence (DUI), public intoxication, and liquor law violations.