

**Michigan Department of Health and Human Services
Behavioral Health and Developmental Disabilities Administration
OFFICE OF RECOVERY ORIENTED SYSTEMS OF CARE (OROSC)**

Recovery Oriented System of Care, Transformation Steering Committee Meeting

MINUTES

DATE/TIME: March 17, 2016; 10:00 am to 3:00 pm
LOCATION: Horatio Earle Learning Center
7575 Crouner Drive
Dimondale, MI

FACILITATOR: Deborah J. Hollis
NOTETAKER: Recorded – Sandra Bullard

ATTENDEES: **In Person:** Carolyn Foxall, Yarrow Halstead, Deborah Hollis, Sara Koziel, Lisa Miller, Colleen Jasper, Darlene Owens, Sam Price, Thomas Renwick, Marci Scalera, Larry Scott, Mindie Smith, Ronnie Tyson, Pam Werner, Jill Worden, Cathy Worthem

CONFERENCED IN: David Blankenship, Denise Herbert, Julia Hitchingham, Dawn Radzioch, Kristi Schmiege, Mark Witte

TOPIC SUMMARIES

- I. WELCOME AND INTRODUCTIONS – *Deborah Hollis***
Deborah welcomed the Transformation Steering Committee (TSC). Everyone introduced themselves.
- II. REVIEW AGENDA AND MINUTES**
Minutes from the 11/21/15 and 1/21/16 meetings were reviewed and approved by consensus.
- III. BHDDA UPDATES – *Thomas Renwick***
 - **Blueprint for Health Innovation Handout** – Tom explained that Governor Snyder’s budget includes a recommendation concerning changing the funding for the carved out behavioral health services from Prepaid Inpatient Health Plans (PIHPs) to Medicaid Health Plans. Under the direction of Lieutenant Governor Brian Calley, two work groups have been formed to discuss the design of the public behavioral health care delivery system; the Section 298 Workgroup with approximately 130 members and a smaller Facts Workgroup with approximately 12-15 members. The Facts Workgroup is intended to provide information to help inform the larger 298 Workgroup discussion. The 298 Workgroup is being facilitated by Peter Pratt from Public Sector Consultants. The 298 Workgroup will formulate recommendations.
 - **Waivers 1115, 1915(b), and 1915(c)** – Tom explained details regarding these waivers and the next steps. He also talked about provisions of managed care behavioral authorization through the feds. An 1115 waiver application has been drafted and presented for public comment. After the comments have been reflected in the application, it will be submitted to the Centers for Medicare and Medicaid (CMS). There is no mandated time frame for CMS to approve or reject an 1115 waiver application. The Department is working towards an October 1, 2016 implementation date.

- **Institute for Mental Deficiency (IMD)** – He also explained that there are federal restrictions on the use of Medicaid funds to pay for services provided in IMDs. There is an ability to use 1115 waiver that allows Medicaid funds to be used to pay for services provided in IMD settings. There is also pending federal legislation and CMS proposed rules that would change the current prohibition of using Medicaid funds to pay for services in those settings.
- **Certified Community Behavioral Health Clinics (CCBHC)** – Tom talked about how under Senator Stabenow legislation, planning grants were awarded to Michigan and 23 other states. The planning grant allows states to subsequently apply to be one of eight states which will be awarded grant awards to implement CCBHCs. A steering committee has been established. Within two weeks the state will issue a request for certification (RFC) for those entities that are interested in becoming one of Michigan's pilot CCBHC sites. The RFC will address how the interested sites currently comply with the certification standards now in existence and how a prospective payment system would be implemented. The final grant application has to be submitted to CMS by July 2017. Eight to ten CCBHC pilot sites will be implemented across Michigan. Ten core services have to be provided by the CCBHC. Larry mentioned that there are some CCBHC-ready Federally Qualified Health Centers (FQHCs), for example Hackley in Muskegon. He said we should make sure we have some FQHCs that serve populations that have serious health disparities to have an impact in our communities; specifically Native Americans in the Upper Peninsula and Detroit, etc.
- **SIMS Project Handout** –Tom also explained that there was a press release issued announcing the identified sites and boundaries, related to better health outcomes. Development operational plan due by end of May.

IV. Final Draft Cultural Competency Toolkit – Carolyn Foxall

Carolyn and the TSC reviewed suggested changes made to the Cultural Competency Toolkit which were approved by consensus.

V. Calculator for an Adequate System Tool (CAST) – Mark Witte

Mark described a Substance Abuse and Mental Health Services Administration (SAMHSA) tool called CAST (attached), which is an objective data-driven methodology that determines the degree and amount of services/variety of services that are needed in any particular geographic region, based on the characteristics of the region. Mark goes on to explain how CAST works, stating specific examples. A SAMHSA effort is underway to conduct a data informed/led process of community evaluation using tools that have to do with social determinants of health with the array of services that represent a ROSC framework beta testing. Mark said he would be happy to represent TSC's interest.

VI. OROSC Innovation Projects – Larry Scott

Michigan Youth Treatment Infrastructure Enhancement Grant (MYTIE) – Larry reported that this grant was received in October 2015. Target population 16-21 year old adolescents and transitional youth. Larry goes on to explain the requirements of the grant and the details surrounding it, which include developing a financial map (treatment funding resources), workforce map, three-year workforce training plan, and a three year strategic plan. We were also required to form an interagency council, which has now been created. Three interagency council meetings have taken place to date. Interagency meeting discussion included the current infrastructure of substance use disorder (SUD) services, including barriers, appropriate treatment models (adolescent and adult based) and opportunities for improving the current infrastructure, which led to a continuum of care survey to be issued soon to the PIHPs for their provider agencies. A treatment workforce survey is under development. The web-based survey will be sent out twice in close proximity to one another; Monday, March 21 or 22, 2016.

Request for Information (RFI) – Larry explained the feedback received from the PIHPs, the funding that was available and the funding the PIHPs requested. Out of 10 PIHPs only six responded. Proposals equaled approximately \$2.8 million out of \$3.6 million available. He also gave a brief snapshot of proposals received. Allocation letters will be sent within the next two weeks.

VII. Peer Recovery Coach Curriculum Update – Deborah Hollis

Deborah explained about the curriculum and how it is still under development. Comments have been received, and Bringing Recovery Supports to Scale Technical Assistance Center Strategy (BRSS TACS) has provided a curriculum writer.

VIII. Drug Court Conference – Darlene Owens

Darlene reported there was a drug court conference held this week. All the PIHP SUD Directors presented and Dr. Waller, as well as medical directors and providers were in attendance. Law Enforcement and judges were educated and enlightened about various drugs used in treatment. Discussion by the TSC of various experiences with law enforcement and how they need to be educated and ways to accomplish this. Larry mentioned that the Center for Substance Abuse Treatment (CSAT) has issued a funding announcement for drug courts to expand treatment services and that it is due April 4, 2016. CSAT says twenty percent of funding must go to Medication Assisted Treatment (MAT) services, as well as other treatment modalities to receive the funding.

IX. TSC Member Updates – All

➤ **Deborah**

- FBI - Chasing the Dragon video link:
<https://www.fbi.gov/news/stories/2016/february/raising-awareness-of-opioid-addiction/video/chasing-the-dragon-the-life-of-an-opiate-addict>
- 42 CFR is out for comment, please participate.
- Please read the Mental Health Reform Act 2016 # 2680 that has impact on the Substance Abuse Prevention and Treatment (SAPT) Block Grant.
- High Intensity Drug Trafficking Areas' (HIDTA) Facebook page is *Recreational Marijuana: The Impact of Legalization*.

➤ **Sara**

- Medicaid Health Homes is now called My Care Team, There are 10 parent health care organizations that have been selected sites. Of those 10, there are 43 across the state. Sara goes on to name some of the sites. Reaching out to all health centers. Staff expansion forthcoming. Sites average 350,000 participants. Expect the financial incentive to bring in these providers.

➤ **Darlene**

- Underage Drinking Forum – April 20, 2016.
- Training Law Enforcement on Naloxone first March 22, 2016.
- Drug Surveillance Meeting Monday March 21, 2016.
- Substance Abuse HIV Co-occurring Women's Awareness Conference April 21, 2016.
- SBIRT Training with Wayne State and branching out.
- Increasing rates in residential services.

➤ **Lisa**

- Happy to be back.

➤ **Sam**

- Flipping over outpatient clinics into recovery center wellness concept and expect it to be completed by the end of the fiscal year.

➤ **Larry**

- Research evaluation found that there has been an increase in use prevalence/incidence/trends related to marijuana use and an uptake in the recreational use of marijuana. To be sent to the TSC.
- The CDC recently published prescribing guidelines for physicians on pain management.

- **Ron**
 - Completed 10 out of 12 naloxone trainings for SUD Providers in Genesee County.
 - 2016 Spring Conference.
- **Marci**
 - Lenawee County CCART training 4/25-29/16. Will send flyer. Cost is associated with the training.
 - Each county is working with law enforcement and training them on Naloxone. Three counties have project LAZARUS and Monroe requests to be added. Expanding Naloxone availability, such as in the jail and have them followed in the community by mental health providers.
- **Kathy**
 - Allegan County expansion of SUD treatment services includes community based treatment using Kent County models (Recovery management and Family engagement work). Getting referrals from probation, Child Protective Services, families and individuals. Also working with the jail system.
- **Mindie**
 - Naloxone – All eight counties and law enforcement have been receptive to Naloxone. Six counties have been trained and two additional counties scheduled. Trainings start at 7:00 am. Two hundred (200) MSP will be trained.

Action Item	Person(s) Responsible	Deadline
Send CAST to Sandra	Mark	03/31/16
Marijuana Research Evaluation to TSC	Larry	04/15/16

ADDITIONAL INFORMATION

NONE

WRAP-UP AND ADJOURNMENT

The meeting ended at – 2:30 pm

NEXT MEETING

Date/Time: May 19, 2016; 10:00 am to 3:00 pm

Location: Horatio Earle Center
7575 Crowner Drive
Dimondale, Michigan

Metrics for an adequate system: A tool for evaluating community substance abuse care systems

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Word count: 2361

Abstract

Background: This paper presents a new method for evaluating substance abuse system capacity within a community. *Methods:* We completed three literature reviews and synthesized the results to create a community capacity calculation spreadsheet. Two-hundred and twelve articles were reviewed to produce an inventory of community and social determinants of behavioral health, components of a substance abuse care system, and numerical values for estimating guidelines for community needs. *Results:* The calculator for an adequate system tool (CAST) generates community specific recommendations of need for thirty-two components in a community substance abuse care system. Community specific recommendations are generated by the application of social and community determinants of health as risk coefficients to each estimate of component need. *Conclusion:* CAST is for public health practitioners seeking to develop comprehensive, community-based, substance abuse care systems. By using guidelines for component need across the continuum of care, community leaders can use CAST to prioritize resource allocation more effectively and efficiently.

Thumbnail

Community needs assessments and health rankings provide descriptions of localized behavioral health systems but do not provide practitioners with recommendations for the number of programs, practitioners, or interventions they should be developing. By applying evidence identified through literature review, this study presents a calculator tool that produces community-specific, numerical guidelines for thirty-two components of a substance abuse care system. The tool integrates the current state of the knowledge about participation rates and treatment effectiveness for each component of the substance abuse care system to inform resource allocation and public health evidence-based planning within communities.

Introduction

The concurrent rise in the availability of localized public health data and the development of the social determinants of health framework has resulted in widespread efforts to enable data-informed, evidence-based, applied public health within communities.[1-4] More specifically, data collection and visualization efforts have focused on indicators of susceptibility for substance abuse, generalized mental health well-being measures, and the identification of treatment locations for substance abuse or mental health treatment access.[5-8] These efforts have provided community leaders with descriptions of health needs but leave them without guidelines for quantifying how best to address those needs.

Despite state-level planning efforts, complete behavioral health systems are a moving target, as they develop over time and in the midst of shifting funding priorities, decentralized planning, and multiple organizational actors[9]. These dynamics tend to produce two negative outcomes, 1) gaps in key elements of a comprehensive care system and 2) redundancy of resource allocation [10, 11]. A public health planning approach to resolving these negative outcomes must provide a framework for counting and evaluating the frequency and distribution of a comprehensive set of components constituting localized substance abuse care systems[12].

The Calculator for an Adequate System Tool (CAST) is a systems approach to community planning and evaluation of community behavioral health systems. CAST applies social and community indicators as risk coefficients to generate population-specific estimates of need for both formal and informal components of a community behavioral health system. Throughout the paper, the term *component* is used to talk broadly about the formal and informal programs, interventions, treatments, and medical professionals that constitute a community system of care[13]. The elements of CAST and the specific application of it to a substance abuse care system are presented in this paper.

Methods

Estimating Equation

Equations and calculation systems used to determine health needs areas[14], community resilience[15], community health needs[16] mental health system adequacy[11] and state-level estimates of behavioral health provider capacity were reviewed but did not provide a clear mathematical process for CAST[17, 18]. Models intended to use data to drive decision making utilizing mathematical assumptions about the impact of factors related to the desired outcomes did provide useful templates for CAST. For example, the benefit of STI screening programs on subsequent transmission of an STD, or the utility of condoms in interrupting pregnancy.[19] The

CAST model is built on the assumption that community characteristics are logically linked to component needs and individual behavioral health outcomes. The strategy of forecasting services need for a population by applying known estimates of infection rate among at-risk subpopulations to determine disease burden, is analogous to estimating component demand in a substance abuse care system.

Through an evaluation of behavioral health literature, a model using five variables was settled on for CAST. The variables used to calculate community need for each component in the substance abuse care system are – social and community indicators, substance abuse system components, single component dosage rates, program usage rates, and group size for services targeting more than one individual.

Social and Community Indicators

Identification of the indicators of substance abuse included an evaluation and cataloging of 143 articles, (including 15 meta-analyses) of research on social and community correlates of substance use and abuse. This review produced a list of sixty-three indicators linked to the likelihood for substance abuse. These indicators were organized in to three categories (demographics, social indicators, and community indicators). They are defined as:

Demographic: Descriptive statistics about population characteristics.

Social indicators: Aggregated, individual-level, ordinal variables used to describe the population characteristics of individuals within a geographically defined region.

Community indicators: Categorical variables that either pool populations to a place, or impact the social context of any individual regardless of social characteristics, within a defined geography.

After sorting by type, indicators were evaluated to determine if the evidence suggested a conclusive or inconclusive statistical relationship to substance abuse. Conclusive indicators displayed a singular directionality with increased substance use or abuse across studies. Inconclusive indicators displayed contradictory relationships or have been not been adequately studied. A number of conclusively supported composite indicators were not included in the CAST due to a lack of locally available data. The total list of all indicators is presented in Tables 1& 2 in the Results section.

Substance abuse system of care

Components for the substance abuse system were identified through a literature review of 75 articles about prevention, promotion, referral, treatment and recovery programs, interventions, and medical professionals. This review identified the individual components necessary in an adequate, comprehensive, substance abuse care system, as well as dosage rates, usage rates, and treatment group sizes for each component. When no guidelines for benchmarks were available from the literature, estimates were made using the median rate or size as observed in national-level surveys of service provision and use. The total inventory includes thirty-two components,

organized along the continuum of care categories, and is provided in Table 3 of the results section¹.

A review of literature identified an organizing framework for system components, evaluating fifteen separate methods for classifying local behavioral health care systems. The SAMHSA continuum of care framework was determined to provide the most comprehensive framework as well as integration with resources for communities interested in applying to federal funding mechanisms[20].

Results

CAST is a spreadsheet (Excel). Page 1 is a set of inputs, as local officials are asked to provide population totals, and to answer yes/no questions on the social and community indicators of substance abuse for their community. Data for each indicator is available on the internet, and a data collection guide provides a list of sources for each indicator to ease the data input process for user of CAST. Page 2 comprises the list of substance abuse care system components as identified in table 3, organized in a single column with the calculated totals for each component need estimates. Additional sheets provide definitions of each indicator, component, and equation value, as well as all supporting citations.

Estimating Equation

CAST estimates component needs by first determining a maximum community need, (defined as the program units necessary to reach each member of the target population for a year), for each component. The specific calculation includes four variables: the target population (X_1), the treatment exposure (Y_1), the size of the group receiving an intervention (Z_1) and the frequency of treatment over a year (Y_2). Each estimate is adjusted to reflect the social and community determinants of substance abuse by applying a risk coefficient to the basic estimate (R). Maximum community need is modified by the application of component use rates for the target population that has been identified in literature or surveys.

$$\text{Community Need} = [(X_1 * Y_1) / (Z_1)] * [1 + R] * U$$

X_1 – Total target population

Y_1 – Individual dosage frequency (in a year)

Z_1 – Number of treatment group participants

R – Prevalence ratio of social indicators of substance abuse + Prevalence ratio of community indicators of substance abuse

U – Usage rate or Percentage of target population expected to use the component

The total target population varies by component type. CAST applies rates from the 2014 NSDUH to estimate substance use, abuse, dependence, and treatment seeking behavior of the community population for alcohol, cannabis, cocaine, methamphetamine and opiates[21]. Target populations have been selected for each component and are defined within the spreadsheet. Individual dosage frequency and treatment group participant values used in each estimate are not presented in this paper, but are available as supplemental material.

Each component (be it a program, intervention, provider, or advertisement) need is calculated using program specific frequencies or units. Units were selected to provide estimates of

¹ For practitioners and public health officials looking for support with program specific decisions, visit SAMHSA database of evidence-based practices (<http://www.nrepp.samhsa.gov/>).

community level needs, not individual dosage. For example, when estimating the total number of inpatient detoxification units needed for a population, the median visits per year for an individual who has had inpatient detox was used as the individual dosage frequency, and the media size of inpatient detoxification services as identified in the TEDS data set was used as the value for treatment group participation[7].

Usage rate is an adjustment to the overall need calculation which assumes that a treatment system will not serve 100% of a population. In some cases, for example, 15% of the population will use a service. Rates of usage for each component were identified in the literature review, and are available as supplemental material. Of course, once a system has been created to serve the current demand, it can then begin to increase the ability of the system to integrate new users.

Social and Community Indicators

Sixty-three possible indicators were identified during the literature review. These indicators were sorted into groups by indicator type. Available indicators at the county-level with a positive statistical association with substance abuse rates were included in CAST. The indicators used for the substance abuse CAST are listed in Table 1. Indicators identified in the literature review that are not included in the tool are listed in Table 2.

The risk coefficient for the social and community determinants is calculated by separately summing and averaging both the eleven binary social indicators and seven community indicators identified through the indicators literature review. This process produces an unweighted, risk coefficient of the social and community context.² When applied to adjust the maximum community need estimate, generic estimates of need reflect the characteristics of the community. A yes answer for any given indicator increases the need estimate for each component by approximately 6%.

Table 1: Demographic categories and conclusively supported social and community indicators of substance abuse as binary variables used in CAST

Demographics	Social Indictors	Community Indicators
Age %: 10-19 & 20-65	Voter turnout below 35%[22]	County designated as a high incidence drug trafficking area[23]
Gender %: Male & Female	High School dropout rate greater than 12%[24]	Alcohol outlet density over .4 liquor stores per 10,000 people[25]
Total Population	Homeless population above 2%[26]	Collapse of a major employer[27]
	Incarceration rate above 1.5 per 100 people[28]	University[29]
	Veteran population above 2000 in the county[30]	Military Base[31]

² Version 2.0 of the tool will include weighted risk coefficients.

Previously in foster care rate above 5 per person[32]	Violent crime rate above 300 per 100,000[22]
More than 12% of households with income below 35,000[33]	Walkability score below 50[34]
Median household income above \$53,000[35]	
More than 30% with a college degree[36]	
Divorced, widowed, separated rate above 3.5 per 1000 in past year[37]	
Percent uninsured above 20%[38]	

Benchmarks of community prevalence for social and community indicators were defined by previously completed research or, when research was absent, by using the national median. These were then included in the calculator as binary variables. “Yes,” answers correspond to a positive relationship with increased likelihood of substance abuse and are given a score of 1. Community indicators, such as the walkability of the community or the presence of a university, reflect structures within communities, also either present or absent, and are also included as binary, yes/no questions.

Table 2: List of indicators identified in literature review but not included in the tool

Demographics	Social	Community
SES	Unemployment Rate	Neighborhood population density
Religion	Income Inequality	Neighborhood household density
Region of Residence	Peer Effects	Workplace wellness programs
Rural/Urban Race/Ethnicity composition	Neighborhood deprivation	Culturally relevant healthcare services
	Mood disorders prevalence	Community Readiness Enhancement Programs
	Social norms	Federal/Foundation Investments
	Race/Ethnicity composition	Technical Assistance
	Social capital	Unemployment remediation programs
	Community attachment	Ag & Food access programs
	Social Cohesion	Water & Sanitation Infrastructure quality
	Average Commuting Time	General Community Capacity
	Employer composition	Environmental Toxins
	SMI prevalence	Quality of institutional processes
	Anxiety and disruptive disorders prevalence	Refugee Resettlement Density
	Prior Substance abuse treatment	Community Isolation
		Behavioral Health care Provider density

Many indicators not included in the tool are associated with a higher likelihood for substance abuse, for example prior substance abuse treatment, but data about the given indicator are unavailable at the county or local level. Other indicators have received little attention from the research community and were not determined to be conclusively supported. The list of indicators being used in the tool will undergo yearly revision to reflect the state of the science.

Substance abuse system of care

CAST calculates community specific total need recommendations for each of the individual promotion, prevention, referral, treatment and recovery component listed in table 3. Each calculation includes specific values for the (1) total target population, (2) individual treatment exposure, (3) individual dosage frequency (in a year) and (4) number of treatment group participants. The units of these values vary in accordance with the component type. For example, the unit of estimation for community coalitions is groups and the unit of estimation for school-based prevention programs is programs delivered. As with the list of indicators, the values used to calculate the prevalence recommendations for each component will be updated yearly to reflect the state of the research.

Table 3: List of components included in the capacity calculator organized by Continuum of Care categories:

<i>Promotion</i>	<i>Prevention</i>	<i>Referral</i>	<i>Treatment</i>	<i>Recovery</i>
<ul style="list-style-type: none"> • Social marketing advertisements • Media advocacy events • Community coalitions 	<p>Universal</p> <ul style="list-style-type: none"> • School-based • Community-based • Faith-based • Workplace-based <p>Selective</p> <ul style="list-style-type: none"> • Mobile outreach services • Housing vouchers <p>Indicated</p> <ul style="list-style-type: none"> • Needle exchange • Prescription drug disposal events and locations 	<ul style="list-style-type: none"> • Adult drug courts • Youth drug court • Primary care doctors with Substance abuse awareness training • Clinical social workers of social workers with Substance abuse awareness certification • Mental health awareness trained police • Employer/EAP 	<p>Inpatient</p> <ul style="list-style-type: none"> • Detoxification • 24-hour Intensive • Short Term • Long Term <p>Outpatient</p> <ul style="list-style-type: none"> • Detoxification • Mental Health Professionals • Office based opiate substitution 	<ul style="list-style-type: none"> • 12-step groups • Peer support groups • Religious or spiritual advisors • Transportation • Employment support • Educational support • Parenting education • Insurance Assistance

A county public health official or community leader will add to the calculator the *observed community totals* for each component. Subtracting observed community total from recommended totals produces a value of need or excess for each component. These totals can be comparatively evaluated and assessed by the community leaders and citizens as components in a system.

Discussion

CAST produces an evaluation of a community substance abuse system by calculating need or excess for thirty-two components in a continuum of care. Community leaders can use CAST to inform decisions about financial, human, and infrastructure resource allocation to address substance abuse in their communities. By identifying redundancies and gaps, CAST provides an assessment framework and community-specific guidelines for component need. Linking community assessment with estimated guidelines provides local leaders with context for decision making that is based upon the current state of the literature. Our recommendation is for CAST to be used as one element in evidence-based community health care planning, alongside county health rankings, community needs assessments and rigorous program evaluation. Integration of these data analysis strategies produces a comprehensive picture of need, context, and capacity that enables a proactive and public health approach to addressing substance abuse in communities.

A limitation of CAST is the accuracy of the values used to estimate each component in the system. Research supporting decisions made about benchmarks and program dosage rates is sparse, and although median estimates are a reasonable method for establishing a benchmark, they are less precise than those values produced through careful research. The list of components that have been selected will continue to be refined as will be the indicators. Version 1.0 of CAST uses unweighted indicators in the risk coefficient calculation, which is a limitation that will be addressed in version 2.0 of the calculator. Confidence intervals will be also added to version 2.0 of CAST for each of the component need recommendations.

Conclusion

Creating CAST produced two separate outcomes. The literature review produced an inventory of social and community indicators of substance abuse. This inventory can inform research about the social and community determinants of behavioral health. In this paper, these indicators have been defined, organized, and applied to produce community-specific need recommendations for each component of an adequate substance abuse care system.

The CAST spreadsheet is the second outcome. CAST contributes to scholarship on community-level interventions by seeing them as shapers of demand for local services. Components for responding to need are interconnected along the continuum of care, by placing potentially generic intervention guidelines within both the social and community contexts, and by producing a tool that can be used by local leaders in communities.

CAST generates community specific recommendations for thirty-two components that reflect a comprehensive, community-level, substance abuse care system. When comparatively evaluated, this inventory provides a framework for planning and strategic implementation of a wide-range of components, including programs, interventions, educational efforts, and infrastructure expansion aimed at improving local care system for substance abuse toward the end of decreasing the social and personal burdens of use.

Citations

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Total Population							
0	Usage rates	Total Estimated # of users in community	Maximum Estimate of users seeking treatment	Total Estimated # of substance dependent or abusers in community			
Alcohol	22.9%	0	0	0			
Cannabis	15.9%	0	0	0			
Cocaine	1.6%	0	0	0			
Methamphetamine/amphetamines	1.8%	0	0	0			
Opiates	6.7%	0	0	0			
Total number of Substance Users (%)		0	0	0			
Combined Risk Factor	0.50						
Components	Maximum Community Need	Program Usage Rate	Adjusted community need	Observed Community Totals	Estimated Need	Units per Year	
<i>Promotion</i>							
Social Marketing Advertisements	0	85%	0		0	Single advertisements	
Media Advocacy Events	0	30%	0		0	Advocacy Events	
Community Coalitions	0	100%	0		0	Coalitions	
<i>Prevention</i>							
Universal							
School-based prevention programs	0	93%	0		0	1-hr long programs	
Community-based prevention programs	0	12%	0		0	1-hr long programs	
Faith-based prevention programs	0	9%	0		0	Short term programs	
Workplace prevention programs	0	2%	0		0	Short term programs	
Selective							
Mobile outreach services	0	58%	0		0	Texts &/or Alerts	
Housing Voucher programs	0	42%	0		0	Individual vouchers	
Indicated							
Needle Exchange	0	60%	0		0	Needle Exchange Locations	
Prescription Drug Disposal Events/Locations	0	60%	0		0	Drug Disposal Outlets	Adjust
<i>Referral</i>							
Adult Drug Courts	0	50%	0		0	Drug Courts	
Primary Care Doctors w/ SA training	0	10%	0		0	Doctors	
Social Workers	0	87%	0		0	Social Workers	
Youth Drug Court	0	50%	0		0	Drug Courts	
MH Awareness Trained Police	0	25%	0		0	Police Officers	Adjust

Total Population							
0	Usage rates	Total Estimated # of users in community	Maximum Estimate of users seeking treatment	Total Estimated # of substance dependent or abusers in community			
Employer/EAP	0	2%	0		0	Programs	
<i>Treatment</i>							
Inpatient							
Detoxification	0	1%	0		0	Detox Locations	
24-hour/Intensive Day treatment	0	2%	0		0	Treatment programs	
Short-term (30 days or fewer)	0	2%	0		0	Treatment programs	
Long-term (more than 30 days)	0	6%	0		0	Treatment programs	
Outpatient							
Detoxification	0	1%	0		0	Locations	
Counselors, Psychiatrist or Psychotherapist	0	74%	0		0	professionals	
Office based opiate substitution	0	25%	0		0	Locations	
<i>Recovery Support</i>							
Religious or spiritual advisors	0	1%	0		0	Individual professionals	adjust
12-step groups	0	30%	0		0	Groups	
Peer support groups	0	9%	0		0	Groups	
Transportation	0	14%	0		0	Bus trips	
Employment support	0	5%	0		0	Individual professionals	
Educational support	0	14%	0		0	Classes	
Parenting education	0	7%	0		0	Classes	
Housing Assistance	0	7%	0		0	Individual professionals	
Insurance Assistance	0	90%	0		0	Individual professionals	

Intervention	Population	Value	Modification	Citation
Advertisements	Community	0		
Advocacy Events	Community	0		
Coalitions	Community	0		
School.Prevention	Population % under 18	0		
Community.Prevention	Community	0		
Faith.Prevention	Community % that participate in faith communities	0	30% of US citizens participate in a religious community	Pew, 2012
Workplace.Prevention	Work force with heavy alcohol use (8.8%, Ames 2011)	0	8.8% of full time workers reported heavy alcohol use Civilian labor force participation rate - ten year average - 64%	Ames, 2011 http://www.bls.gov/web/empsit/cps_charts.pdf
Mobile Outreach	Substance Users seeking treatment	0		
Housing Vouchers	Low-income Users Seeking Treatment	0	Relative poverty rate 12-64 national average - 2015 - 15%	https://www.census.gov/content/dam/Census/library/publications/2015/demo/p60-254.pdf
Needle Exchange	IV Drug Users	0		
P Drug disposal	Community members with opioid prescriptions	0	The rate of opioid prescriptions in the total population is 485 per 1000.	(McCarty, et al. 2014)
Adult Drug Courts	Adults arrested for Drug use	0	5% of population has been arrested for drug violation.	BJS, 2011
Primary Care Doctors	Substance Dependent/Abuser	0		
Social Workers	Substance Dependent/Abuser accessing social workers	0	Census, 2014	2.9% of households receive public assistance benefits
Youth Drug Courts	Juveniles arrested for drug use	0		
Police	% of substance using population that interact with police	0	SAMHSA, 2014	27% of male arrestees aged 18 or older had a past year dependence or abuse of drug or alcohol
Employer/EAP	Work force with heavy alcohol use	0	Ames, 2011 BLS, 2015	
Detox - inpatient	Users seeking treatment	0		
24 intensive	Users seeking treatment	0		
short term	Users seeking treatment	0		
long term	Users seeking treatment	0		
Detox - outpatient	Users seeking treatment	0		
MH Professionals	Users seeking treatment	0		

Intervention	Population	Value	Modification	Citation
Opiate Therapy	Opioid users seeking treatment	0		
Rel.advisors	Users seeking treatment that participate in religious communities	0		
12-step groups	Users seeking treatment	0		
Peer support groups	Users seeking treatment	0		
transportation	Users seeking treatment that have expressed need for transportation	0	Pringle et al. 2006	6% of patients reported a need for transportation services
employment support	Users seeking treatment that want to be part of the workforce	0	Pringle et al. 2006; BLS, 2015	Unemployment rate - nationally
Educational support	Users seeking treatment with less than a high school education	0	TEDS, 2012	32% of TEDS admissions above 18 had less than 12 grades of education.
Parenting education	Users seeking treatment who are parents	0	Census, 2012	
Housing Assistance	Homeless users seeking treatment	0	Krausz et al. 2013	
Insurance Access Assistance	Uninsured users	0	Census, 2015	

Intervention	Individual Treatment Exposure	Value for Calculation	Citation	Notes
Advertisements	3 views per ad	3	Krugman, 1972 Cheong et al. 2010	"overall, the effect size of the average campaigning on population behavior in the short-term, as measured by the mean of correlations was .09 which 'roughly translates to 9% more people performing the behavior after the campaign than before' (Snyder & Hamilton, in Abroms & Maibach)
Advocacy Events	5 substances. 3 events per year	3	Poulin et al 1995; Oliver et al	
Coalitions	N/A			
School.Prevention	3 events per year	3	Johnson et al 1990	
Community.Prevention	1 program per year	1	Poulin et al 1995; Florin et al. 2012	
Faith.Prevention	1 program per year	1	Dehaven, 2004	
Workplace.Prevention	1 program per year	1	Reynolds, 2003	
Mobile Outreach	One alert each week	52	Kaplan et al. 2013	
Housing Vouchers	2 vouchers to provide assistance for housing per year	2	Krausz et al. 2013 O'Connell, 2014	
Needle Exchange	Once a month per year	12	WHO, 2007	
P Drug disposal	Once a year	1	McCarthy, 2014 Gray et al. 2012	
Adult Drug Courts	1.4 per year	1.4	BJS, 2011 Shaffer et al.	Average number of doctor visits per year is 3.19.
Primary Care Doctors	Once a year	1	AAFP, 2011	
Social Workers	Need to find ave. length of involvement	1	BLS, 2014	
Youth Drug Courts	1.4 per year	1.4	JD, 2011 Henggeler, 2007 Pullman et al. 2009	
Police	Could find something related to exposure/interaction with police	1.4		
Employer/EAP	Once a year	1	Reynolds, 2003	

Detox - inpatient	Once a year	1		34% of day treatment clients completed 6 months of treatment compared with 29% of residential clients (Guydish, et al. 1998)
24 intensive	Once a year	1		
short term	Once a year	1		
long term	Once a year	1		
Detox - outpatient	Once a year	1		
MH Professionals	Once a year	1		
Opiate Therapy	One a year	1		
Rel.advisors	Need to estimate.	1		
12-step groups	Twice a year	2	Crevecoeur- MacPhail et al., 2010	The sample median of the total number of AA meetings attended during the 3 months of treatment was 10. 32% reported attending 0, 30% attended 1-22, 41% attended 23-45, 15% attended 46-90, 9% reported attending more than 90.
Peer support groups	Twice a year	2	Pagano et al. 2004	
transportation	Once a week	52	Tighe & Saxe 2006	
employment support	Three a year	3		
Educational support	Classroom program - 2 per year at 20 weeks per class	2		
Parenting education	Classroom program - 10 classes per program	1		
Housing Assistance	Three times a year	3		
urance Access Assistan	Once a year	1		

Intervention	Treatment Group Size	Citation	Notes
Advertisements	5000	Emery et al. 2007 Wakefield et al. 2010	They calculated exposure to television advertising about tobacco and obesity prevention in 75 largest media markets.
Advocacy Events	5000	Emery et al. 2007	
Coalitions	30,000		30,000 people is the ideal for representation by an elected official. As these coalitions work at the community level, this is a reasonable way to estimate treatment group size.
School.Prevention	300	Tobler, 2002	
Community.Prevention	100	Estimated based on guidelines for adult education classes	
Faith.Prevention	238	Dehaven et al, 2004	
Workplace.Prevention	30	Blum, 1989; Ames 2011	The size of the group needs to be adjusted, as there are a wide range of types of workplace interventions (see Ames 2011)
Mobile Outreach	1000	Buller et al. 2014	Text message reminders & App
Housing Vouchers	25	O'Connell, 2014	
Needle Exchange	2000	WHO, 2007	
P.Drug disposal	1200	Grey, 2012	Total # of individual prescription names
Adult Drug Courts	125	Adult Drug Court Best Practice Standards, Vol II, 2014	

Intervention	Treatment Group Size	Citation	Notes
Primary Care Doctors	20	AAFP, 2011	Doctors see, on average, 2100 patients per year in primary care settings. This number was then divided by 210 total work days to produce a daily estimate of group size capacity.
Social Workers	30	Child Welfare Information Gateway, 2010	
Youth Drug Courts	125	Adult Drug Court Best Practice Standards, Vol II, 2014	
Police	5880	FBI, 2012	Per capita police rate is 17 per 100,000.
Employer/EAP	27	TEDS, 2012	Same estimate as MH providers
Detox - inpatient	5	TEDS, 2012	
24 intensive	3	TEDS, 2012	
short term	10	TEDS, 2012	
long term	15	TEDS, 2012	Buck, 2011
Detox - outpatient	5	TEDS, 2012	
MH Professionals	27	TEDS, 2012	
Opiate Therapy	187	TEDS, 2012	
Rel.advisors	27	TEDS, 2012	
12-step groups	30	Dipietro, 2015, pc	
Peer support groups	15	CSAT, 2005	
transportation	15		Carrying capacity of a small bus or large van
employment support	15	NJ Courts, 2015	
Educational support	15	Improve estimate	
Parenting education	15	Improve estimate	
Housing Assistance	15	NJ Courts, 2015	

Intervention	Treatment Group Size	Citation	Notes
Insurance Access Assistance	50	Green, 2014	Each assister can help approximately 50 people

Intervention	Usage Rate	Citation	Notes
Advertisements	85%	Saxe et al. 2006	86% of individuals in Fighting Back communities reported having seen a promotional ad in the previous 6 months.
Advocacy Events	30%	Oliver & Meyer, 1999	30% of any type of advocacy event received local newspaper coverage.
Coalitions	100%	N/A	Since these organizations work at the community level, individual participation rates are not useful calculations. The assumption is that if the coalition is being effective, even if that effectiveness is only in creating new relationships, then it is being used by 100% of participants. It's a tautology. 67% still existed after 4 years (Feinber et al 2008). Could use this as a decreasing factor
School.Prevention	93%	Epstein et al 2002	Average national school attendance - 93%
Community.Prevention	12%	Poulin and Kaufmann, 1995	12% of respondents participated in community action programs related to substance use
Faith.Prevention	9%	PEW, 2012	Total percentage of US population affiliated with a religious tradition (PEW, 2012) * Community program participation
Workplace.Prevention	34%	Reynolds, 2003	Depends upon whether program participation is mandatory or elective. Ames, 2011. Used 34% of workplaces provided programs estimate from Reynolds, 2003

Mobile Outreach	53%	Pop-Eleches et al. 2011 in Kaplan and Stone 2013 Buller et al. 2014	In a SMS text reminder trial, 58% of HIV patients who received daily or weekly reminders showed a 90% drug use rate compared to 40% in the control group. This gives a reasonable estimate of SMS text dosage effectiveness of 58% of the population. Same result found by Buller with smoking cessation programs. 90% of American citizens have a cell phone, the usage rate was offset by 90%.
Housing Vouchers	42%	Kushel et al. 2001	In a nationally representative sample of homeless users of medical services, 42% of the sample were classified as marginally homeless. Vouchers are not a permanent housing solution, but a transition program. Therefore, they will be used by a proportion of the overall homeless, in this case the number of people in marginal housing.
Needle Exchange	60%	WHO, 2007	If 60% of injecting drug users in a specified geographic area are reached by the NSP at least once a month during the last year this is considered good coverage
P. Drug disposal	60%	Lystlund et al. 2014	60% of patients at the University of Oklahoma Pharmacy report an interest in participating in drug take-back programs for unused, unwanted, or expired medications.
Adult Drug Courts	50%	Miller & Shutt 2001	50% of drug users completed the drug court program

Primary Care Doctors	10%	Kahan et al. 1995	Brief, Provider specific interventions, have been found to reduce the harmful effects of alcohol by 20 to 50 percent. I think the best number to use is the % of the population that has a substance abuse issue and would need treatment. This is a reasonable proxy for the number of people visiting medical doctors who would benefit from a doctor paying attention to SA issues.
Social Workers	71%	http://www.socialworkers.org/pubs/news/2001/01/crucial.htm & http://workforce.socialworkers.org/studies/nasw_06_execsummary.pdf	71% of social workers had taken one or more actions in relation to clients with SA disorders in the past year.
Youth Drug Courts	50%	Henggeler 2007	Research review finds that completion effectiveness is similar to adult drug courts.
Police	25%	Teller, 2006	In an evaluation of the Akron police department, 25% of officers willingly participated in the program.
Employer/EAP	2%	Blum, 1989 Reynolds, 2003	5.5% of employees participate in EAPs. Of those, 37% for Substance use related issues. Multiplying these two gives an estimate of how many employees would be expected to pursue treatment through workplace EAPs
Detox - inpatient	1%	N-SSATS, 2012	N-SSATS (2012) Table 2.3
24 intensive	2%	N-SSATS, 2012	N-SSATS (2012) Table 2.3
short term	2%	N-SSATS, 2012	N-SSATS (2012) Table 2.3
long term	6%	N-SSATS, 2012	N-SSATS (2012) Table 2.3
Detox - outpatient	1%	N-SSATS, 2012	N-SSATS (2012) Table 2.3
MH Professionals	74%	N-SSATS, 2012	N-SSATS (2012) Table 2.3
Opiate Therapy	25%	N-SSATS, 2012	N-SSATS (2012) Table 2.3

Rel.advisors	2%	Delaney et al. 2008	2% of alcohol users sought treatment help with clergy.
12-step groups	30%	Hillhouse & Fiorentine, 2001	
Peer support groups	9%	Bui, 2002	9% of folks in his sample demonstrated an interest in participating in support group.
transportation	14%	Campbell et al., 2002	14% of clients received transportation assistance 67% of facilities provided on-site transportation services (Friedmann 2000)
employment support	5%	Asche, 2002	61% of treatment facilities provided employment counseling (Friedmann 2000)
Educational support	14%	NTIES Final Report, 1997	Table 3.9 14% of patients in SDUS received academic training
Parenting education	7%	Asche, 2002	average of inpatient/outpatient use from Asche, 2002
Housing Assistance	7%	Pringle, 2002	6.7% had received transportation after three-months.
Insurance Access Assistance	90%	Kaiser, 2014	90% of population are insured. Can assume that this is the same proportion of the still uninsured population interested in receiving assistance

Social Determinants	Citations	Note	Reconsider
Voter Turnout	Bryden et al, 2013 Stockdale et al, 2007 Havens et al., 2011 Townsend et al. 2007	Voter turnout is being used as an indicator of community attachment and social cohesion.	
High School dropout rate	Galea et al, 2004		
Homeless population	Roy et al., 2003 Galea et al, 2002 Gonzalez et al. 2002 Krausz et al. 2013 Galea et al, 2002	This is an estimate. If we know that 6.2% of the population will experience homelessness (Apicello, 2010) and we know that 35% of the homeless population has a substance use issue (SAMHSA fact sheet, 2011), we can estimate a need per 100 people to develop a threshold rate of 2 per 100.	
Incarceration rate	Clear et al. 2003 Oser et al. 2012 Harding, 2013	Clear, 2007 found that crime increased in communities once they reached a return rate of 1.65. I rounded down for the sake of simplicity and because the pursuit of treatment is a lower threshold for need than is that of committing a crime.	
Veteran population	O'Connell et al., 2012 Bray et al. 2010		
Foster care population	Medlow et al., 2014 Lynch et al., 2004	5 per 1000 people as national average (HHS executive report to Congress, 2009-2012) http://www.acf.hhs.gov/sites/default/files/cb/cwo09_12.pdf	
Household Income below \$35,000	Galea et al. 2003 Compton et al 2007		
Median household income above \$53,000	Bryden et al, 2013 Stockdale, 2007 Galea et al, 2007	"There was a linear increase in the prevalence of alcohol use along both the median income and the Gini axes, such that the neighborhood with the highest median income and the highest Gini had the highest prevalence of alcohol use."	
College degree population	Karriker-Jaffe, 2013		
Divorced, widowed, or separated rate	Kadushin, 1998 Dube et al, 2003		
Uninsurance rate	Compton, 2007 Ali, et al, 2014		
Community Determinants			
Drug Trafficking	Freisthther et al., 2005 Stockwell, 2007	They do this at a sub-county level. Making it about the county designation, and not the specificity of street corner that they did, supports both sets of their findings.	Consider removing (Harrison 1996)
Alcohol outlet density	Jernigan, et al. 2013		
Collapse of major employer		They look at economic downturns and summarize the evidence. Like may others, the unemployment articles cited are focused on youth.	
University	Catalano et al. 2011 Wechsler et al, 2002	Work done by Goldsmith (1997; 1996) shows that longterm unemployment often leads to hopelessness, depression, anxiety and low self-esteem as unemployment lingers.	Consider removing
Military base	Sirratt et al, 2012 Bryden, 2013 Stockwell, 2007 Kawacki, et al 1999		
Violent crime rate	Curry et al 2008		
Walkability	Rogers et al, 2010	They connect walkability to increased social capital.	

Intervention	Definition	Citation	Type of intervention	Notes
Advertisements	intentional, informational campaigns that use advertising theories to alert community of a substance use problem and/or treatment program. Medium of the advertisement is not relevant for effectiveness, will likely influence the population seeing the campaign.	Abroms et al., 2008 Saxe et al 2006	Action	
Advocacy Events	Media campaign with a specific, community change agenda related to behavioral health or management of substance use. Garnering local news attention to move forward the cause is a key consideration.	Freudenberg et al. 1995 Cujipers, 2003	Action	
Coalitions	Any intentional collective of local organizational leaders, be they political, non-profit, or business organizations, receiving and allocating grant funding to limit substance use, abuse, and/or dependence. To be the most effective, research has shown that a highly capable board of directors, a commitment to research & evidence-based practices, and the hiring of a dedicated staff person correlate with a positive impact on lower usage rates.	Emshoff et al. 2007 Feinberg et al, 2008 Hawkins, 2010 Shapiro, 2015	Structure	
School.Prevention	1 hour long, drug/alcohol, usage and prevention educational programming taking place within a school setting.	Tobler et al., 2000 Sandler, et al., 2014	Event	
Community.Prevention	Prevention programs taking place within non-profit or social services settings.	Goodman et al., 2014	Event	
Faith.Prevention		Johanson et al., 1996 Dehaven et al., 2004	Event	The Dehaven article focuses on any type of health and they make the distinction between faith place, faith based, and collaborative.
Workplace.Prevention	Prevention programs taking place within a religious community programs for primary prevention of alcohol abuse in the workplace...which focus on changing individual behavior, as well as environmental interventions, to reduce risk factors by changing the work environment.	Sorensen, et al., 2002 Ames et al., 2011	Event	The Ames article provides a comprehensive overview of workplace intervention strategies.
Mobile Outreach	Mobile phone based reminder services about groups and treatments for individuals undergoing treatment or who have participated in groups.	Kaplan et al., 2013	Structure	
Housing Vouchers	voucher programs to enable low-income residents higher degrees of neighborhood mobility.	Sanbonmatsu et al. 2011 O'Connell et al, 2012	Structure	
Needle Exchange	a social service that allows injecting drug users to obtain hypodermic needles and associated paraphernalia at little or no cost	WHO, 2007	Structure	
P.Drug disposal	programs that inform the general public about safe storage and disposal of prescription drugs; collection of drugs by officials at permanent return programs or one-day events	Lystlund et al. 2014 Gray, 2012	Event & Structure	
Adult Drug Courts	provision of substance abuse treatment in combination with collaborative case management and supervision. Adult Drug Court model used for estimation. Other types of court models exist and might also be relevant for the community.	Shaffer et al, 2011	Structure	
Primary Care Doctors	primary care doctors who have received or attended training in substance abuse recognition and are willing to engage in brief interventions	SAMHSA, 1997 Compton et al, 2007	Individual	"The most common treatment settings for individuals with drug use disorders included private physicians and other health care professionals, a finding that underscores the continued importance of the critical detection and referral roles of primary care physicians in the treatment of these disorders."
Social Workers	social workers who have received education or training related to the identification of substance abuse and/or mental health	NASW, 2013	Individual	
Youth Drug Courts	provision of substance abuse treatment in combination with collaborative case management and supervision as an alternative to incarceration for juveniles	Shaffer et al, 2011	Structure	
MH awareness police training	police officers serving a community who have received additional education and training on how to recognize and respond to mental health needs.	Teller et al., 2006 Lamb et al., 2002	Individual	
Employer/EAP	assessment, short-term counseling, and referral services to employees with substance abuse and other work-related problems	Reynolds et al. 2003	Structure	
Detox - inpatient	24 hour per day medical acute care services in hospital or residential setting for safe withdrawal and transition to ongoing treatment. Count both hospital and residential based detox locations	TEDS, 2014 TEDS, 2014	Structure	
24 intensive/Intensive Day Short term (30 days or fewer)	a nonresidential, psychiatric care program less than 30 days of non-acute care in a setting with treatment services for alcohol and other drug abuse and dependency	TEDS, 2014	Structure	
Long term (more than 30 days)	more than 30 days of non-acute care in a setting with treatment services for alcohol and other drug abuse and dependency; this may include transitional living arrangements such as halfway houses	TEDS, 2014	Structure	
Detox - outpatient	a period of medical treatment during which a person is helped to overcome physical and psychological dependence on alcohol occurring in an outpatient setting	TEDS, 2014	Structure	
MH Professionals		TEDS, 2014 Najavits & Weiss, 1994	Individual	"The main conclusions are that therapists show diverse rates of effectiveness, and that such differences appear independent of both therapists' professional background and of patient factors at the start of therapy."
Opiate therapy	a certified provider of psychiatric and mental health counseling, medical services, and care.	TEDS, 2014 Najavits & Weiss, 1994	Individual	
Rel.advisors	medical providers of opiate substitution therapies such as methadone or buprenorphine	TEDS, 2014	Structure	
12-step groups	religious professionals providing substance abuse therapy and counseling	Najavits & Weiss, 1994 Oser et al., 2012 SAMHSA, 2008	Individual	
Peer support groups	brief, structured, and manual-driven approaches to treatment a voluntary gathering of people with similar challenges, related to substance use/abuse, meeting weekly or monthly for an hour or two, to share experiences and coping strategies.	http://www.ncbi.nlm.nih.gov/books/NBK64223/	Event	
Transportation	programs provided by treatment facilities or community center to aid recovering individual in accessing treatment.	Pringle, 2006 TEDS, 2014	Event	
Employment support	programs explicitly aimed at assisting post-treatment, recovering, community members gain access to employment.	TEDS, 2014	Action	
Educational support				"We found no systematic review of the health effects of adult education interventions in OECD countries published in the current decade." Bamba, 2010
Parenting education	adult education programs aimed at helping recovering community members to achieve educational goals, i.e., get an GED.	TEDS, 2014	Event	
	classes designed to educate adults about the many issues children face from the effects of substance abuse.	TEDS, 2014	Event	

Housing assistance

programs aimed at finding housing for individuals in recovery. They may or may not include a specific treatment component.
Insurance assistance available to individuals in recovery.

O'Connell et al. 2012
Bambra, 2010
Kling et al. 2007
Ali, et al., 2015

Structure
Individual

Although a number of studies have found that supported housing enhances housing outcomes but does not reduce substance use (16,31), our data suggested that these effects may not be universal across subgroups. Comparison of housing outcomes among veterans enrolled in HUD-VASH and treatment-only conditions found that the access to housing vouchers facilitated by HUD-VASH was associated with particularly beneficial housing outcomes for Caucasian veterans, veterans with co-occurring disorders, and veterans with more active substance use.

MICHIGAN

Table 55 Selected Drug Use, Perceptions of Great Risk, Average Annual Marijuana Initiates, Past Year Substance Dependence or Abuse, Needing But Not Receiving Treatment, and Past Year Mental Health Measures in Michigan, by Age Group: Estimated Numbers (in Thousands), Annual Averages Based on 2011-2012 NSDUHs

Measure	12+	12-17	18-25	26+	18+
ILLCIT DRUGS					
Past Month Illicit Drug Use ¹	905	95	261	549	810
Past Year Marijuana Use	1,152	122	378	652	1,030
Past Month Marijuana Use	738	72	243	423	666
Past Month Use of Illicit Drugs Other Than Marijuana ¹	301	37	77	187	263
Past Year Cocaine Use	112	6	39	67	106
Past Year Nonmedical Pain Reliever Use	422	54	118	249	367
Perception of Great Risk of Smoking Marijuana Once a Month	2,172	202	148	1,823	1,970
Average Annual Number of Marijuana Initiates ²	97	45	46	6	52
ALCOHOL					
Past Month Alcohol Use	4,463	109	684	3,670	4,355
Past Month Binge Alcohol Use ³	2,056	62	472	1,522	1,994
Perception of Great Risk of Drinking Five or More Drinks Once or Twice a Week	3,294	313	345	2,636	2,982
Past Month Alcohol Use (Persons Aged 12 to 20)	330 ⁴	--	--	--	--
Past Month Binge Alcohol Use (Persons Aged 12 to 20) ³	218 ⁴	--	--	--	--
TOBACCO PRODUCTS					
Past Month Tobacco Product Use ⁵	2,555	88	487	1,981	2,468
Past Month Cigarette Use	2,152	66	405	1,680	2,086
Perception of Great Risk of Smoking One or More Packs of Cigarettes per Day	5,630	529	691	4,409	5,100
PAST YEAR DEPENDENCE, ABUSE, AND TREATMENT⁶					
Illicit Drug Dependence ¹	160	20	57	84	141
Illicit Drug Dependence or Abuse ¹	233	37	74	121	195
Alcohol Dependence	287	12	64	211	275
Alcohol Dependence or Abuse	582	31	153	398	552
Alcohol or Illicit Drug Dependence or Abuse ¹	725	57	191	477	668
Needing But Not Receiving Treatment for Illicit Drug Use ^{1,7}	207	34	69	103	173
Needing But Not Receiving Treatment for Alcohol Use ⁷	561	30	147	384	531
PAST YEAR MENTAL HEALTH					
Had at Least One Major Depressive Episode ^{8,9}	--	82	113	439	552
Serious Mental Illness ^{9,10}	--	--	54	285	339
Any Mental Illness ^{9,11}	--	--	224	1,260	1,484
Had Serious Thoughts of Suicide	--	--	95	236	332

-- Not available.

NOTE: Estimates are based on a survey-weighted hierarchical Bayes estimation approach.

¹ Illicit Drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically. Illicit Drugs Other Than Marijuana include cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically. These estimates include data from original methamphetamine questions but do not include new methamphetamine items added in 2005 and 2006. See Section B.4.8 in Appendix B of the *Results from the 2008 National Survey on Drug Use and Health: National Findings*.

² Average annual number of marijuana initiates = $X_1 \div 2$, where X_1 is the number of marijuana initiates in the past 24 months.

³ Binge Alcohol Use is defined as drinking five or more drinks on the same occasion (i.e., at the same time or within a couple of hours of each other) on at least 1 day in the past 30 days.

⁴ Underage drinking is defined for persons aged 12 to 20; therefore, the "12+" estimate reflects that age group and not persons aged 12 or older.

⁵ Tobacco Products include cigarettes, smokeless tobacco (i.e., chewing tobacco or snuff), cigars, or pipe tobacco.

⁶ Dependence or abuse is based on definitions found in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*.

⁷ Needing But Not Receiving Treatment refers to respondents classified as needing treatment for illicit drugs (or alcohol), but not receiving treatment for an illicit drug (or alcohol) problem at a specialty facility (i.e., drug and alcohol rehabilitation facilities [inpatient or outpatient], hospitals [inpatient only], and mental health centers).

⁸ Major depressive episode (MDE) is defined as in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*, which specifies a period of at least 2 weeks when a person experienced a depressed mood or loss of interest or pleasure in daily activities and had a majority of specified depression symptoms. There are minor wording differences in the questions in the adult and adolescent MDE modules. Therefore, data from youths aged 12 to 17 were not combined with data from persons aged 18 or older to produce an estimate for those aged 12 or older.

⁹ For details, see Section B of the "2011-2012 NSDUH: Guide to State Tables and Summary of Small Area Estimation Methodology" at <http://www.samhsa.gov/data/NSDUH/2k12State/NSDUHsae2012/Index.aspx>.

¹⁰ Serious mental illness (SMI) is defined as having a diagnosable mental, behavioral, or emotional disorder, other than a developmental or substance use disorder, that met the criteria found in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)* and resulted in serious functional impairment.

¹¹ Any mental illness (AMI) is defined as having a diagnosable mental, behavioral, or emotional disorder, other than a developmental or substance use disorder, that met the criteria found in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2011 (SMI and AMI Estimates Revised October 2013) and 2012.

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Table 56 Selected Drug Use, Perceptions of Great Risk, Average Annual Rates of First Use of Marijuana, Past Year Substance Dependence or Abuse, Needing But Not Receiving Treatment, and Past Year Mental Health Measures in Michigan, by Age Group: Percentages, Annual Averages Based on 2011-2012 NSDUHs

Measure	12+	12-17	18-25	26+	18+
ILLCIT DRUGS					
Past Month Illicit Drug Use ¹	10.89	11.67	23.76	8.58	10.81
Past Year Marijuana Use	13.87	15.00	34.41	10.20	13.75
Past Month Marijuana Use	8.89	8.89	22.13	6.61	8.89
Past Month Use of Illicit Drugs Other Than Marijuana ¹	3.62	4.56	6.99	2.92	3.52
Past Year Cocaine Use	1.35	0.79	3.57	1.04	1.41
Past Year Nonmedical Pain Reliever Use	5.08	6.67	10.78	3.90	4.91
Perception of Great Risk of Smoking Marijuana Once a Month	26.13	24.82	13.45	28.51	26.28
Average Annual Rate of First Use of Marijuana ²	2.21	6.46	8.42	0.20	1.40
ALCOHOL					
Past Month Alcohol Use	53.74	13.35	62.30	57.42	58.13
Past Month Binge Alcohol Use ³	24.76	7.67	42.94	23.81	26.62
Perception of Great Risk of Drinking Five or More Drinks Once or Twice a Week	39.66	38.39	31.44	41.24	39.80
Past Month Alcohol Use (Persons Aged 12 to 20)	25.93 ⁴	--	--	--	--
Past Month Binge Alcohol Use (Persons Aged 12 to 20) ³	17.14 ⁴	--	--	--	--
TOBACCO PRODUCTS					
Past Month Tobacco Product Use ⁵	30.77	10.77	44.30	30.99	32.95
Past Month Cigarette Use	25.91	8.14	36.91	26.29	27.85
Perception of Great Risk of Smoking One or More Packs of Cigarettes per Day	67.79	65.01	62.95	68.97	68.08
PAST YEAR DEPENDENCE, ABUSE, AND TREATMENT⁶					
Illicit Drug Dependence ¹	1.93	2.42	5.19	1.31	1.88
Illicit Drug Dependence or Abuse ¹	2.80	4.60	6.74	1.89	2.61
Alcohol Dependence	3.45	1.46	5.82	3.30	3.67
Alcohol Dependence or Abuse	7.01	3.78	13.97	6.23	7.36
Alcohol or Illicit Drug Dependence or Abuse ¹	8.73	7.01	17.36	7.47	8.92
Needing But Not Receiving Treatment for Illicit Drug Use ^{1,7}	2.49	4.21	6.31	1.62	2.31
Needing But Not Receiving Treatment for Alcohol Use ⁷	6.76	3.72	13.41	6.00	7.09
PAST YEAR MENTAL HEALTH					
Had at Least One Major Depressive Episode ^{8,9}	--	10.06	10.27	6.87	7.37
Serious Mental Illness ^{9,10}	--	--	4.90	4.47	4.53
Any Mental Illness ^{9,11}	--	--	20.43	19.70	19.81
Had Serious Thoughts of Suicide	--	--	8.68	3.70	4.43

-- Not available.

NOTE: Estimates are based on a survey-weighted hierarchical Bayes estimation approach.

¹ Illicit Drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically. Illicit Drugs Other Than Marijuana include cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically. These estimates include data from original methamphetamine questions but do not include new methamphetamine items added in 2005 and 2006. See Section B.4.8 in Appendix B of the *Results from the 2008 National Survey on Drug Use and Health: National Findings*.

² Average annual marijuana initiation rate = $100 * \{ [X_1 \div (0.5 * X_1 + X_2)] \div 2 \}$, where X_1 is the number of marijuana initiates in the past 24 months and X_2 is the number of persons who never used marijuana. Both of the computation components, X_1 and X_2 , are based on a survey-weighted hierarchical Bayes estimation approach. Note that the age group is based on a respondent's age at the time of the interview, not his or her age at first use.

³ Binge Alcohol Use is defined as drinking five or more drinks on the same occasion (i.e., at the same time or within a couple of hours of each other) on at least 1 day in the past 30 days.

⁴ Underage drinking is defined for persons aged 12 to 20; therefore, the "12+" estimate reflects that age group and not persons aged 12 or older.

⁵ Tobacco Products include cigarettes, smokeless tobacco (i.e., chewing tobacco or snuff), cigars, or pipe tobacco.

⁶ Dependence or abuse is based on definitions found in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*.

⁷ Needing But Not Receiving Treatment refers to respondents classified as needing treatment for illicit drugs (or alcohol), but not receiving treatment for an illicit drug (or alcohol) problem at a specialty facility (i.e., drug and alcohol rehabilitation facilities [inpatient or outpatient], hospitals [inpatient only], and mental health centers).

⁸ Major depressive episode (MDE) is defined as in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*, which specifies a period of at least 2 weeks when a person experienced a depressed mood or loss of interest or pleasure in daily activities and had a majority of specified depression symptoms. There are minor wording differences in the questions in the adult and adolescent MDE modules. Therefore, data from youths aged 12 to 17 were not combined with data from persons aged 18 or older to produce an estimate for those aged 12 or older.

⁹ For details, see Section B of the "2011-2012 NSDUH: Guide to State Tables and Summary of Small Area Estimation Methodology" at <http://www.samhsa.gov/data/NSDUH/2k12State/NSDUHsae2012/Index.aspx>.

¹⁰ Serious mental illness (SMI) is defined as having a diagnosable mental, behavioral, or emotional disorder, other than a developmental or substance use disorder, that met the criteria found in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)* and resulted in serious functional impairment.

¹¹ Any mental illness (AMI) is defined as having a diagnosable mental, behavioral, or emotional disorder, other than a developmental or substance use disorder, that met the criteria found in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2011 (SMI and AMI Estimates Revised October 2013) and 2012.

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Table 55 Selected Drug Use, Perceptions of Great Risk, Average Annual Marijuana Initiates, Past Year Substance Dependence or Abuse, Needing But Not Receiving Treatment, and Past Year Mental Health Measures in Michigan, by Age Group: Estimated Numbers (in Thousands), Annual Averages Based on 2012-2013 NSDUHs

Measure	12+	12-17	18-25	26+	18+
ILLICIT DRUGS					
Past Month Illicit Drug Use ¹	954	92	264	598	862
Past Year Marijuana Use	1,268	130	383	755	1,138
Past Month Marijuana Use	809	74	245	490	735
Past Month Use of Illicit Drugs Other Than Marijuana ¹	294	31	74	189	263
Past Year Cocaine Use	90	3	30	57	88
Past Year Nonmedical Pain Reliever Use	397	47	112	238	350
Perception of Great Risk of Smoking Marijuana Once a Month	2,016	184	137	1,694	1,831
Average Annual Number of Marijuana Initiates ²	102	48	48	7	54
ALCOHOL					
Past Month Alcohol Use	4,546	104	703	3,739	4,442
Past Month Binge Alcohol Use ³	2,027	52	462	1,514	1,975
Perception of Great Risk of Drinking Five or More Drinks Once or Twice a Week	3,367	303	357	2,707	3,064
Past Month Alcohol Use (Individuals Aged 12 to 20)	321 ⁴	--	--	--	--
Past Month Binge Alcohol Use (Individuals Aged 12 to 20) ³	198 ⁴	--	--	--	--
TOBACCO PRODUCTS					
Past Month Tobacco Product Use ⁵	2,468	78	458	1,932	2,390
Past Month Cigarette Use	2,107	58	379	1,670	2,050
Perception of Great Risk of Smoking One or More Packs of Cigarettes per Day	5,655	517	695	4,443	5,139
PAST YEAR DEPENDENCE, ABUSE, AND TREATMENT⁶					
Illicit Drug Dependence ¹	165	18	55	93	148
Illicit Drug Dependence or Abuse ¹	250	33	75	142	217
Alcohol Dependence	275	10	65	200	265
Alcohol Dependence or Abuse	570	25	150	396	546
Alcohol or Illicit Drug Dependence or Abuse ¹	731	47	193	491	684
Needing But Not Receiving Treatment for Illicit Drug Use ^{1,7}	215	31	71	113	184
Needing But Not Receiving Treatment for Alcohol Use ⁷	552	24	146	381	528
PAST YEAR MENTAL HEALTH ISSUES					
Had at Least One Major Depressive Episode ^{8,9}	--	82	114	445	560
Serious Mental Illness ^{9,10}	--	--	59	294	353
Any Mental Illness ^{9,10}	--	--	233	1,277	1,509
Had Serious Thoughts of Suicide	--	--	99	242	341

-- Not available.

NOTE: Estimates are based on a survey-weighted hierarchical Bayes estimation approach.

¹ Illicit Drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically. Illicit Drugs Other Than Marijuana include cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically. These estimates include data from original methamphetamine questions but do not include new methamphetamine items added in 2005 and 2006.

² Average annual number of marijuana initiates = $X_1 \div 2$, where X_1 is the number of marijuana initiates in the past 24 months.

³ Binge Alcohol Use is defined as drinking five or more drinks on the same occasion (i.e., at the same time or within a couple of hours of each other) on at least 1 day in the past 30 days.

⁴ Underage drinking is defined for individuals aged 12 to 20; therefore, the "12+" estimate reflects that age group and not individuals aged 12 or older.

⁵ Tobacco Products include cigarettes, smokeless tobacco (i.e., chewing tobacco or snuff), cigars, or pipe tobacco.

⁶ Dependence or abuse is based on definitions found in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*.

⁷ Needing But Not Receiving Treatment refers to respondents classified as needing treatment for illicit drugs (or alcohol), but not receiving treatment for an illicit drug (or alcohol) problem at a specialty facility (i.e., drug and alcohol rehabilitation facilities [inpatient or outpatient], hospitals [inpatient only], and mental health centers).

⁸ Major depressive episode (MDE) is defined as in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*, which specifies a period of at least 2 weeks when a person experienced a depressed mood or loss of interest or pleasure in daily activities and had a majority of specified depression symptoms. There are minor wording differences in the questions in the adult and adolescent MDE modules. Therefore, data from youths aged 12 to 17 were not combined with data from adults aged 18 or older to produce an estimate for those aged 12 or older.

⁹ For details, see Section B of the "2011-2012 NSDUH: Guide to State Tables and Summary of Small Area Estimation Methodology" at <http://www.samhsa.gov/data/population-data-nsduh/reports?tab=33>.

¹⁰ Mental Illness is defined as having a diagnosable mental, behavioral, or emotional disorder, other than a developmental or substance use disorder, assessed by the Mental Health Surveillance Study (MHSS) *Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders—Fourth Edition—Research Version—Axis I Disorders (MHSS-SCID)*, which is based on the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*. Three categories of mental illness severity are defined based on the level of functional impairment: mild mental illness, moderate mental illness, and serious mental illness (SMI). Any mental illness (AMI) includes individuals in any of the three categories.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2012 and 2013.

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Table 56 Selected Drug Use, Perceptions of Great Risk, Average Annual Incidence Estimates of First Use of Marijuana, Past Year Substance Dependence or Abuse, Needing But Not Receiving Treatment, and Past Year Mental Health Measures in Michigan, by Age Group: Percentages, Annual Averages Based on 2012-2013 NSDUHs

Measure	12+	12-17	18-25	26+	18+
ILLICIT DRUGS					
Past Month Illicit Drug Use ¹	11.45	11.40	23.84	9.32	11.46
Past Year Marijuana Use	15.22	16.12	34.59	11.76	15.12
Past Month Marijuana Use	9.71	9.13	22.15	7.64	9.77
Past Month Use of Illicit Drugs Other Than Marijuana ¹	3.53	3.86	6.70	2.94	3.49
Past Year Cocaine Use	1.08	0.35	2.73	0.89	1.16
Past Year Nonmedical Pain Reliever Use	4.77	5.86	10.11	3.71	4.65
Perception of Great Risk of Smoking Marijuana Once a Month	24.16	22.87	12.36	26.39	24.30
Average Annual Incidence Estimates of First Use of Marijuana ²	2.42	6.98	8.71	0.25	1.53
ALCOHOL					
Past Month Alcohol Use	54.55	12.89	63.46	58.24	59.01
Past Month Binge Alcohol Use ³	24.33	6.44	41.69	23.58	26.24
Perception of Great Risk of Drinking Five or More Drinks Once or Twice a Week	40.40	37.62	32.27	42.16	40.70
Past Month Alcohol Use (Individuals Aged 12 to 20)	25.74 ⁴	--	--	--	--
Past Month Binge Alcohol Use (Individuals Aged 12 to 20) ³	15.89 ⁴	--	--	--	--
TOBACCO PRODUCTS					
Past Month Tobacco Product Use ⁵	29.62	9.65	41.35	30.10	31.75
Past Month Cigarette Use	25.29	7.14	34.27	26.02	27.23
Perception of Great Risk of Smoking One or More Packs of Cigarettes per Day	67.87	64.11	62.80	69.22	68.27
PAST YEAR DEPENDENCE, ABUSE, AND TREATMENT⁶					
Illicit Drug Dependence ¹	1.98	2.19	4.98	1.44	1.96
Illicit Drug Dependence or Abuse ¹	3.00	4.13	6.80	2.21	2.88
Alcohol Dependence	3.30	1.19	5.84	3.12	3.52
Alcohol Dependence or Abuse	6.85	3.07	13.53	6.17	7.25
Alcohol or Illicit Drug Dependence or Abuse ¹	8.77	5.82	17.43	7.65	9.09
Needing But Not Receiving Treatment for Illicit Drug Use ^{1,7}	2.58	3.80	6.37	1.77	2.44
Needing But Not Receiving Treatment for Alcohol Use ⁷	6.62	2.99	13.22	5.94	7.01
PAST YEAR MENTAL HEALTH ISSUES					
Had at Least One Major Depressive Episode ^{8,9}	--	10.19	10.30	6.94	7.43
Serious Mental Illness ^{9,10}	--	--	5.35	4.58	4.69
Any Mental Illness ^{9,10}	--	--	21.01	19.89	20.05
Had Serious Thoughts of Suicide	--	--	8.90	3.78	4.53

-- Not available.

NOTE: Estimates are based on a survey-weighted hierarchical Bayes estimation approach.

¹ Illicit Drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically. Illicit Drugs Other Than Marijuana include cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically. These estimates include data from original methamphetamine questions but do not include new methamphetamine items added in 2005 and 2006.

² Average annual initiation of marijuana (%) = $100 * \{ [X_1 \div (0.5 * X_1 + X_2)] \div 2 \}$, where X_1 is the number of marijuana initiates in the past 24 months and X_2 is the number of individuals who never used marijuana. Both of the computation components, X_1 and X_2 , are based on a survey-weighted hierarchical Bayes estimation approach. Note that the age group is based on a respondent's age at the time of the interview, not his or her age at first use.

³ Binge Alcohol Use is defined as drinking five or more drinks on the same occasion (i.e., at the same time or within a couple of hours of each other) on at least 1 day in the past 30 days.

⁴ Underage drinking is defined for individuals aged 12 to 20; therefore, the "12+" estimate reflects that age group and not individuals aged 12 or older.

⁵ Tobacco Products include cigarettes, smokeless tobacco (i.e., chewing tobacco or snuff), cigars, or pipe tobacco.

⁶ Dependence or abuse is based on definitions found in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*.

⁷ Needing But Not Receiving Treatment refers to respondents classified as needing treatment for illicit drugs (or alcohol), but not receiving treatment for an illicit drug (or alcohol) problem at a specialty facility (i.e., drug and alcohol rehabilitation facilities [inpatient or outpatient], hospitals [inpatient only], and mental health centers).

⁸ Major depressive episode (MDE) is defined as in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*, which specifies a period of at least 2 weeks when a person experienced a depressed mood or loss of interest or pleasure in daily activities and had a majority of specified depression symptoms. There are minor wording differences in the questions in the adult and adolescent MDE modules. Therefore, data from youths aged 12 to 17 were not combined with data from adults aged 18 or older to produce an estimate for those aged 12 or older.

⁹ For details, see Section B of the "2011-2012 NSDUH: Guide to State Tables and Summary of Small Area Estimation Methodology" at <http://www.samhsa.gov/data/population-data-nsduh/reports?tab=33>.

¹⁰ Mental Illness is defined as having a diagnosable mental, behavioral, or emotional disorder, other than a developmental or substance use disorder, assessed by the Mental Health Surveillance Study (MHSS) *Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders—Fourth Edition—Research Version—Axis I Disorders (MHSS-SCID)*, which is based on the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*. Three categories of mental illness severity are defined based on the level of functional impairment: mild mental illness, moderate mental illness, and serious mental illness (SMI). Any mental illness (AMI) includes individuals in any of the three categories.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2012 and 2013.

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Table 55 Selected Drug Use, Perceptions of Great Risk, Average Annual Marijuana Initiates, Past Year Substance Dependence or Abuse, Needing But Not Receiving Treatment, and Past Year Mental Health Measures in Michigan, by Age Group: Estimated Numbers (in Thousands), Annual Averages Based on 2013-2014 NSDUHs

Measure	12+	12-17	18-25	26+	18+
ILLICIT DRUGS					
Past Month Illicit Drug Use ¹	975	78	278	619	897
Past Year Marijuana Use	1,304	120	391	793	1,183
Past Month Marijuana Use	851	64	258	528	787
Past Month Use of Illicit Drugs Other Than Marijuana ¹	263	24	76	163	239
Past Year Cocaine Use	87	3	35	49	85
Past Year Nonmedical Pain Reliever Use	333	37	103	193	296
Perception of Great Risk from Smoking Marijuana Once a Month	1,926	170	119	1,637	1,756
Average Annual Number of Marijuana Initiates ^{2,3}	102	46	48	8	56
ALCOHOL					
Past Month Alcohol Use	4,558	92	703	3,763	4,466
Past Month Binge Alcohol Use ⁴	2,054	49	464	1,542	2,005
Perception of Great Risk from Drinking Five or More Drinks Once or Twice a Week	3,196	283	351	2,563	2,914
Past Month Alcohol Use (Individuals Aged 12 to 20)	290 ⁵	--	--	--	--
Past Month Binge Alcohol Use (Individuals Aged 12 to 20) ⁴	175 ⁵	--	--	--	--
TOBACCO PRODUCTS					
Past Month Tobacco Product Use ⁶	2,386	65	440	1,881	2,321
Past Month Cigarette Use	2,027	45	355	1,627	1,981
Perception of Great Risk from Smoking One or More Packs of Cigarettes per Day	5,618	507	689	4,422	5,111
PAST YEAR DEPENDENCE, ABUSE, AND TREATMENT⁷					
Illicit Drug Dependence ¹	144	14	45	84	130
Illicit Drug Dependence or Abuse ¹	205	26	67	112	179
Alcohol Dependence	253	8	67	179	246
Alcohol Dependence or Abuse	510	19	142	349	491
Alcohol or Illicit Drug Dependence or Abuse ¹	647	38	182	427	609
Needing But Not Receiving Treatment for Illicit Drug Use ^{1,8}	181	24	64	93	157
Needing But Not Receiving Treatment for Alcohol Use ⁸	497	19	138	339	478
PAST YEAR MENTAL HEALTH ISSUES					
Major Depressive Episode ^{3,9}	--	84	105	396	501
Serious Mental Illness ^{3,10}	--	--	57	280	336
Any Mental Illness ^{3,10}	--	--	245	1,196	1,441
Had Serious Thoughts of Suicide ¹¹	--	--	94	246	340

-- Not available.

NOTE: Estimates are based on a survey-weighted hierarchical Bayes estimation approach.

¹ Illicit Drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically. Illicit Drugs Other Than Marijuana include cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically. These estimates include data from original methamphetamine questions but do not include new methamphetamine items added in 2005 and 2006.

² Average annual number of marijuana initiates = $X_1 \div 2$, where X_1 is the number of marijuana initiates in the past 24 months.

³ For details, see Section B of the "2011-2012 NSDUH: Guide to State Tables and Summary of Small Area Estimation Methodology" at <http://www.samhsa.gov/data/>.

⁴ Binge Alcohol Use is defined as drinking five or more drinks on the same occasion (i.e., at the same time or within a couple of hours of each other) on at least 1 day in the past 30 days.

⁵ Underage drinking is defined for individuals aged 12 to 20; therefore, the "12+" estimate reflects that age group and not individuals aged 12 or older.

⁶ Tobacco Products include cigarettes, smokeless tobacco (i.e., chewing tobacco or snuff), cigars, or pipe tobacco.

⁷ Dependence or abuse is based on definitions found in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV).

⁸ Needing But Not Receiving Treatment refers to respondents classified as needing treatment for illicit drugs (or alcohol), but not receiving treatment for an illicit drug (or alcohol) problem at a specialty facility (i.e., drug and alcohol rehabilitation facilities [inpatient or outpatient], hospitals [inpatient only], or mental health centers).

⁹ Major depressive episode (MDE) is defined as in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV), which specifies a period of at least 2 weeks when an individual experienced a depressed mood or loss of interest or pleasure in daily activities and had a majority of specified depression symptoms. There are minor wording differences in the questions in the adult and adolescent MDE modules. Therefore, data from youths aged 12 to 17 were not combined with data from adults aged 18 or older to produce an estimate for those aged 12 or older.

¹⁰ Mental Illness is defined as having a diagnosable mental, behavioral, or emotional disorder, other than a developmental or substance use disorder, assessed by the Mental Health Surveillance Study (MHSS) *Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders—Fourth Edition—Research Version—Axis I Disorders* (MHSS-SCID), which is based on the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV). Three categories of mental illness severity are defined based on the level of functional impairment: mild mental illness, moderate mental illness, and serious mental illness (SMI). Any mental illness (AMI) includes individuals in any of the three categories.

¹¹ Respondents were asked, "At any time in the past 12 months, did you seriously think about trying to kill yourself?" If they answered "Yes," they were categorized as having serious thoughts of suicide in the past year.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013 and 2014.

MICHIGAN

Table 56 Selected Drug Use, Perceptions of Great Risk, Average Annual Incidence Estimates of First Use of Marijuana, Past Year Substance Dependence or Abuse, Needing But Not Receiving Treatment, and Past Year Mental Health Measures in Michigan, by Age Group: Percentages, Annual Averages Based on 2013-2014 NSDUHs

Measure	12+	12-17	18-25	26+	18+
ILLCIT DRUGS					
Past Month Illicit Drug Use ¹	11.67	9.83	24.90	9.60	11.86
Past Year Marijuana Use	15.60	15.10	35.05	12.29	15.65
Past Month Marijuana Use	10.18	8.09	23.17	8.20	10.40
Past Month Use of Illicit Drugs Other Than Marijuana ¹	3.15	2.97	6.81	2.53	3.16
Past Year Cocaine Use	1.04	0.33	3.16	0.77	1.12
Past Year Nonmedical Pain Reliever Use	3.98	4.63	9.24	2.99	3.91
Perception of Great Risk from Smoking Marijuana Once a Month	23.02	21.37	10.64	25.39	23.19
Average Annual Incidence Estimates of First Use of Marijuana ^{2,3}	2.39	6.55	8.91	0.27	1.57
ALCOHOL					
Past Month Alcohol Use	54.52	11.56	63.02	58.37	59.06
Past Month Binge Alcohol Use ⁴	24.58	6.15	41.58	23.92	26.52
Perception of Great Risk from Drinking Five or More Drinks Once or Twice a Week	38.23	35.44	31.45	39.76	38.53
Past Month Alcohol Use (Individuals Aged 12 to 20)	23.93 ⁵	--	--	--	--
Past Month Binge Alcohol Use (Individuals Aged 12 to 20) ⁴	14.47 ⁵	--	--	--	--
TOBACCO PRODUCTS					
Past Month Tobacco Product Use ⁶	28.54	8.17	39.45	29.18	30.69
Past Month Cigarette Use	24.24	5.68	31.84	25.23	26.20
Perception of Great Risk from Smoking One or More Packs of Cigarettes per Day	67.20	63.52	61.79	68.59	67.59
PAST YEAR DEPENDENCE, ABUSE, AND TREATMENT⁷					
Illicit Drug Dependence ¹	1.72	1.79	4.08	1.31	1.71
Illicit Drug Dependence or Abuse ¹	2.46	3.27	6.00	1.74	2.37
Alcohol Dependence	3.03	0.96	6.02	2.77	3.25
Alcohol Dependence or Abuse	6.11	2.44	12.77	5.41	6.49
Alcohol or Illicit Drug Dependence or Abuse ¹	7.74	4.70	16.36	6.62	8.06
Needing But Not Receiving Treatment for Illicit Drug Use ^{1,8}	2.17	3.06	5.71	1.45	2.07
Needing But Not Receiving Treatment for Alcohol Use ⁸	5.94	2.35	12.42	5.26	6.32
PAST YEAR MENTAL HEALTH ISSUES					
Major Depressive Episode ^{3,9}	--	10.55	9.40	6.14	6.62
Serious Mental Illness ^{3,10}	--	--	5.11	4.34	4.45
Any Mental Illness ^{3,10}	--	--	21.95	18.55	19.05
Had Serious Thoughts of Suicide ¹¹	--	--	8.41	3.82	4.50

-- Not available.

NOTE: Estimates are based on a survey-weighted hierarchical Bayes estimation approach.

¹ Illicit Drugs include marijuana/hashish, cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically. Illicit Drugs Other Than Marijuana include cocaine (including crack), heroin, hallucinogens, inhalants, or prescription-type psychotherapeutics used nonmedically. These estimates include data from original methamphetamine questions but do not include new methamphetamine items added in 2005 and 2006.

² Average annual initiation of marijuana (%) = $100 * \{ [X_1 \div (0.5 * X_1 + X_2)] \div 2 \}$, where X_1 is the number of marijuana initiates in the past 24 months and X_2 is the number of individuals who never used marijuana (with the at-risk population defined as $0.5 * X_1 + X_2$). Both of the computation components, X_1 and X_2 , are based on a survey-weighted hierarchical Bayes estimation approach. The age group shown is based on a respondent's age at the time of the interview, not his or her age at first use.

³ For details, see Section B of the "2011-2012 NSDUH: Guide to State Tables and Summary of Small Area Estimation Methodology" at <http://www.samhsa.gov/data/>.

⁴ Binge Alcohol Use is defined as drinking five or more drinks on the same occasion (i.e., at the same time or within a couple of hours of each other) on at least 1 day in the past 30 days.

⁵ Underage drinking is defined for individuals aged 12 to 20; therefore, the "12+" estimate reflects that age group and not individuals aged 12 or older.

⁶ Tobacco Products include cigarettes, smokeless tobacco (i.e., chewing tobacco or snuff), cigars, or pipe tobacco.

⁷ Dependence or abuse is based on definitions found in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*.

⁸ Needing But Not Receiving Treatment refers to respondents classified as needing treatment for illicit drugs (or alcohol), but not receiving treatment for an illicit drug (or alcohol) problem at a specialty facility (i.e., drug and alcohol rehabilitation facilities [inpatient or outpatient], hospitals [inpatient only], or mental health centers).

⁹ Major depressive episode (MDE) is defined as in the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*, which specifies a period of at least 2 weeks when an individual experienced a depressed mood or loss of interest or pleasure in daily activities and had a majority of specified depression symptoms. There are minor wording differences in the questions in the adult and adolescent MDE modules. Therefore, data from youths aged 12 to 17 were not combined with data from adults aged 18 or older to produce an estimate for those aged 12 or older.

¹⁰ Mental Illness is defined as having a diagnosable mental, behavioral, or emotional disorder, other than a developmental or substance use disorder, assessed by the Mental Health Surveillance Study (MHSS) *Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders—Fourth Edition—Research Version—Axis I Disorders (MHSS-SCID)*, which is based on the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)*. Three categories of mental illness severity are defined based on the level of functional impairment: mild mental illness, moderate mental illness, and serious mental illness (SMI). Any mental illness (AMI) includes individuals in any of the three categories.

¹¹ Respondents were asked, "At any time in the past 12 months, did you seriously think about trying to kill yourself?" If they answered "Yes," they were categorized as having serious thoughts of suicide in the past year.

Source: SAMHSA, Center for Behavioral Health Statistics and Quality, National Survey on Drug Use and Health, 2013 and 2014.