NORC at the University of Chicago

National Safety Council

How Workers with Active Substance Use Disorders Impact Employer Health Care Costs

How Workers with Active Substance Use Disorders Impact Employer Health Care Costs

How is it that workers with untreated substance use disorders (SUDs) use more health care services and cost more for their care than their peers? How do workers who have recovered from substance misuse use less health care and cost employers less for health care?

Workers who have untreated substance use disorders (SUDs) use more medical and mental health services than their peers. They and their employers pay more for this care through increased health insurance premiums and copays. When substance misuse is successfully treated, workers' health care use and costs go down: not to the same level as their peers who have never had SUDs but lower than those with an untreated SUD. The Substance Use Cost Calculator for Employers uses self-reports of health care use from more than 200,000 working people surveyed by the 2015 to 2018 National Survey on Drug Use and Health (NSDUH) to estimate health care utilization. Costs of medical services are derived from published sources of payed claim amounts, rather than charges. All costs are expressed in 2019 dollars. The Federal government's medical consumer price index[i] and drug price index[ii] are used to bring costs to 2019 levels.

Nearly all businesses with 50 or more workers offer individual health insurance coverage (96.5%). Employers pay, on average, 79% of individual health insurance premiums. Workers pay the other 21%, as well as copays and deductibles.[iii] The tables below show per capita utilization and costs of medical, mental health and substance use treatment used by workers with no SUD, those who experienced an SUD in the prior year and workers who have recovered from substance misuse.

Based on NSDUH respondents' reports of health care use, workers with no SUD used services costing $2,918 per year, workers with an SUD used services costing $4,770 and workers who have recovered from an SUD used services costing $3,961. The share that employers paid, either through health insurance premiums or through self-pay, was $2,334 for workers with no SUD, $3,816 for workers with an SUD and $3,169 for workers in recovery.

Hospital:

Hospital care is expensive. The average daily rate payed by commercial health insurers is about $2,657.[iv] Annually, 11% of workers with no SUD are hospitalized overnight, with an average stay of 5.2 days. Workers with an alcohol use disorder (AUD) show a similar pattern: 10% are hospitalized annually for an average of 4.1 days. Workers with a cannabis use disorder (CUD) have comparable hospitalization rates. There is a sharp difference in hospital use by workers with an illicit drug use disorder other than

cannabis or with an opioid use disorder (OUD): their rates of hospitalization are 19.1% and 22.6%, respectively, and when admitted to the hospital they stay longer (6.0 days and 6.5 days). Annual hospital costs for workers with untreated illicit drug use disorders or OUDs are about three times that of their peers, workers with an untreated AUD and their peers in recovery.

Exhibit I: Hospital Use

	No SUD	Alcohol	Illicit Drug (other than cannabis)	Opioid	Recovered
Percent hospitalized	11.1	10	19.1	22.6	13.6
Average length of stay (days)	5.2	4.1	6	6.5	4.4
Per capita hospital cost	$1,534	$1,089	$3,045	$3,903	$1,590

Emergency Department:

Less than a quarter (23%) of workers with no SUD visit the emergency department (ED) every year, averaging 49 visits per 100 workers annually. Workers with an AUD or a CUD have patterns of ED use similar to workers with no SUD. By contrast, workers with an illicit drug use disorder other than cannabis and those with an OUD were more likely to use the ED and had higher rates per 100 workers. The average commercial insurance payment for an ED visit is about $2,213.[v] Workers with an OUD were twice as likely to use the ED in the last year, and had more than twice as many ED visits as their peers with no SUD or as their peers with an AUD. Workers recovered from prior SUDs had intermediate rates of use.

Exhibit II: Emergency Department (ED) Use

	No SUD	Alcohol	Illicit Drug (other than cannabis)	Opioid	Recovered

Percent ED use	23	29	39	44	33
Visits/100 workers	49	52	96	125	71
Per capita ED cost	$249	$334	$829	$1,217	$519

Primary care:

There are small differences in primary care visits. The average cost of a 30-minute primary care visit is about $114.32.[vi] Primary care patients receive an average of 3.3 prescriptions per visit and the retail cost of a prescription is $454.88.[vii] There are few differences between workers with no SUD and those who have recovered from an SUD. Workers with an illicit drug use disorder other than cannabis and those with an OUD saw primary care more often and their costs of care were about 10% higher than their peers.

Exhibit III: Primary Care and Medication Use

	No SUD	SUD	Alcohol	Opioid	Recovered
# Primary care visits	3.8	4.17	2.8	4.2	3.82
$114.32/visit median	$434	$477	$320	$480	$437
Medications: $454.88 x 3.3 prescriptions/visit	$5,704	$6,260	$4,203	$6,305	$5,734
Cost of outpatient visits plus medications	$6,139	$6,736	$4,523	$6,785	$6,171

Mental Health and Substance Use Treatment:

Workers who had an SUD in the past year used mental health (MH) and substance use services at rates higher than their peers who had no SUD and those who had successfully recovered from an SUD. The table below shows the differences in service use and the costs of those services per 100 workers. Workers with no SUD use a small amount of mental health and substance use services, averaging $233/year. Workers with an SUD in the prior year use considerably more mental health and substance use

services, averaging $1,040 per year. Workers in recovery were intermediate at $793/year, using both mental health and substance use services at rates higher than their peers, and about three quarters the rate of workers with an SUD.

Exhibit IV: Mental Health (MH) and Substance Use (SU) Treatment Use

	No SUD	Active AOD	Recovered
MH inpatient	0.8	3.4	2.5
MH inpatient average length of stay = 6.4 days	5.1	21.8	16.0
MH inpatient/day: $1,400[viii]	$7,168	$30,464	$22,400
MH outpatient	7.1	17.6	14.5
MH outpatient average # visits 7.9[ix]	56.1	139.0	114.6
MH outpatient reimbursement/visit $78.69[x]	$4,414	$10,941	$9,014
MH medications	12.4	26.4	22.8
MH medication reimbursement: $571/prescriptions[xi]	$7,080	$15,074	$13,019
MH treatment in a MH center	1.6	5.9	5.2
MH center reimbursement/visit: $78.69[xii]	$126	$464	$409
MH private therapist	4.4	10.1	7.2
MH private therapist/visit: $78.69[xiii]	$346	$795	$567
MH in day hospital	0.1	0.4	0.3
MH in day hospital/day $122.54 x 20 days[xiv]	$245	$980	$735
SU inpatient	0.3	3.6	2

SU inpatient average length of stay=6.4 days[xv]	1.9	23	12.8
SU inpatient/day: $1400[xvi]	$2,688	$32,256	$17,920
SU outpatient rehabilitation	0.5	5.3	6.2
SU outpatient average 20 days[xvii]	10	106	124
SU outpatient: $122.54/day[xviii]	$1,225	$12,989	$15,195

MH=mental health; SU=substance use

Digging a little deeper into reasons for differences:

The NSDUH asks questions about whether respondents have ever been told that they had various chronic illnesses, and they are asked to give an overall impression of their health status. Consistently, workers who are in recovery report more illnesses than peers with no SUD, or those with an SUD, CUD or OUD. They are more likely than workers with no SUD to have been told they had: a heart condition (11.9% vs 6.5%); diabetes (10.2% vs 7.5%); bronchitis or COPD (7.7% vs 2.3%); cirrhosis of the liver (1.4% vs 0.1%); hepatitis B or C (5.4% vs 0.8%); kidney disease (2.5% vs 1.1%); HIV/AIDS (0.9% vs 0.2%); cancer (5.7% vs 4.4%); and high blood pressure (20.6% vs 14.4%).

A fifth of workers in recovery report their overall health is fair or poor, a rate similar to workers with an OUD (21.8%) but substantially higher than workers with no SUD (7.3%), an SUD (10.4%) or a CUD (9.4%). This greater burden of disease among recovered workers may be partially explained by their age: 40% are 50-64 years old. At the opposite end are workers with a CUD: only 5.5% are 50-64 years old. Three in 10 workers with no SUD and those with an OUD are also in that age category. When self-assessments of overall health from workers in the 50-64 age group are compared, rates of fair or poor health are more similar: workers with no SUD comprise 18%, those with an SUD make up 26.5%, recovered account for 30.7%, those with an OUD account for 40.4%, and a CUD for 30.5%.

The greater burden of disease and age of workers in recovery does not result in their taking more days off for illness or injury, or using health care services more intensely. In fact, workers in recovery take the fewest days off – only 10.9 days per year – while workers with no SUD take an average of 15 days and workers with an SUD take 24.6 days. Workers with an OUD take 22 days annually and those with a CUD take 18 days. Compared to workers with an SUD, workers in recovery are less likely to be hospitalized

and if hospitalized, stay for a shorter period. They are also less likely to visit the ED and have fewer primary care visits. Their greater health care use than workers with no SUDs can likely be explained by their greater disease burden and age.

Based on self-reports from more than 200,000 respondents to the NSDUH between 2015 and 2018, we estimate that the average employer pays through health insurance premiums or self-pay approximately $2,918 per year for each worker with no SUD, $4,770 for each worker with an SUD and $3,961 for each worker in recovery. When the costs of leave for illness and injury are added to health care costs, workers in recovery are a bargain.

Recommendations for Employers

A critical part of addressing employer costs related to active SUD is to ensure employees get the treatment that they need. Employer recommendations include:

- Asking any health insurer they work with to demonstrate what they are doing to identify and treat their employees with a substance use problem. Employers can ask to see their health insurer's statistics on diagnosing and treating substance use disorders in its covered population. If health plans offer substance use benefits, employers can offer comprehensive treatment options to workers with substance use disorder that include coverage for:[xix]
    - Confidential substance use screening, which increases the rate of identification of risky and unhealthy alcohol and drug use
    - Brief intervention and referral to treatment
    - Outpatient and inpatient treatment
    - Medications for addiction treatment
    - Counseling and medical services
    - Follow-up services during treatment and recovery
- Providing *Disease and Disability Management*: workers on short- and long-term disability for injury or illnesses are often treated with opioid pain medications for more than a few days. Use of long-acting opioid pain medications or short-acting opioids for more than 5 days is associated with increased length of disability, reduced likelihood of returning to work and greatly increased risk of developing an opioid addiction, in addition to whatever injury or illness caused the work

absence. Employers should insist that their EAP, disability or disease management contractors be watchful for any SUD that returning workers may have acquired during their medical care.

  - *Short- and Long-Term Disability:* offering both short- and long-term disability coverage as employee benefits, as opposed to individual employee purchase of personal disability insurance. Financial and job stability while working through any physical or mental injury, distress or illness, or substance use disorder is critical.
    - If employers contract for disease or disability management services, they should require vendors provide for evidence that they are actively tracking data and requiring prescribers abide by the CDC prescribing guides when prescribing opioid use for pain, assessing workers for possible opioid misuse, and intervening to assist them to use alternative, less risky pain management strategies.

- Utilizing *Employee Assistance Programs (EAPs)*: although the majority of workers are covered by these free, confidential, problem-focused programs, [xx] few employers press their EAPs to proactively screen workers contacting the EAP about substance use. A survey of EAPs found a utilization rate for behavioral health services of only 4.5% of the covered workers, which is much less than the prevalence of substance use and mental health concerns in typical workforces[xxi] – most people with substance use and mental health concerns are not utilizing the EAP.
  - Using *Screening Tools*, which increase the rate of identification of risky and unhealthy alcohol and drug use and link people to appropriate treatment earlier. EAPs, onsite health programs and medical providers should learn and use appropriate screening tools. Workplaces should ensure that their EAP and benefits programs use screenings when substance use is suspected, and also encourage screening upon opioid prescription for familial or individual history of addiction or substance use disorders.

- Creating *return-to-work* plans for employees who have taken leave related to substance use. These plans provide an outline of expectations and create employer guidelines to help the employee integrate back into work.[xxii]

- Providing *Worker Peer Support Programs*, in which workers who have experienced substance use or mental health challenges and learned to manage them are formally trained to help co-workers who are facing similar issues.
- Offering a *Drug-Free Workplace Program* that includes:[xxiii]
    - A workplace substance use education component – employee engagement and education leads to a safer workplace. Everyone should be able to recognize the signs and symptoms of impairment, potential substance use disorders, and mental distress, and understand how to access employer resources and treatment.
    - Confidential screening and treatment referrals by an EAP or health professional when needed
    - Confidential follow-up care to support individuals in recovery
    - Supervisor training – supervisors play a critical role in addressing opioids in the workplace. They are often the first to notice a difference in an employee's performance, personality and activities, and they may be the first to notice impairment. It is imperative to provide them with the tools to protect the safety of the workplace and the privacy of employees.

---

[i] https://www.healthsystemtracker.org/chart-collection/how-have-healthcare-prices-grown-in-the-u-s-over-time/#item-the-price-of-office-visits-has-risen-consistently-since-2003 "How have healthcare prices grown in the U.S. over time? By Gary Claxton, Matthew Rae Twitter, Larry Levitt Twitter, and Cynthia Cox CPI for All Urban Consumers (CPI-U) https://data.bls.gov/timeseries/CUSR0000SEMF01?output_view=pct_3mths bureau of labor statistics Source: U.S. Bureau of Labor Statistics began tracking the Consumer Price Index for Medical care in 1947. In addition to medical care, the index produces monthly data on changes in prices paid by urban consumers for a variety of goods and services. https://www.in2013dollars.com/Medical-care/price-inflation ; https://data.bls.gov/pdq/SurveyOutputServlet

[ii] What are the recent and forecasted trends in prescription drug spending? By Rabah Kamal, Cynthia Cox Twitter, and Daniel McDermott KFF https://www.healthsystemtracker.org/chart-collection/recent-forecasted-trends-prescription-drug-spending/#item-growth-in-price-and-utilization-of-pharmaceuticals-has-varied-over-time_2019

[iii] https://meps.ahrq.gov/data_stats/summ_tables/insr/state/series_2/2018/tiia2.pdf . Percent of private sector establishments that offer health insurance by fir size and state: United States, 2018. Table II A.2. AHRQ, Center for Financing, Access and Cost Trends. 2018 Medical Expenditure Panel Survey – Insurance Component. Table II. C.1 Average total single premium (in dollars) per enrolled employee at private sector establishments that offer health insurance by firm size and State: United States, 2018. https://meps.ahrq.gov/data_stats/summ_tables/insr/state/series_2/2018/tiic1.pdf Table II.D.1 Average total family premium I(in dollars) per enrolled employee of private-sector establishments that offer health insurance by firm size and State: United States, 2018 https://meps.ahrq.gov/data_stats/summ_tables/insr/state/series_2/2018/tiid1.pdf Table II D.2 average total employee contribution (in dollars) per enrolled employee for family coverage in private sector establishments that offer health insurance by firm size and State: United States, 2018 https://meps.ahrq.gov/data_stats/summ_tables/insr/state/series_2/2018/tiid2.pdf Miller, G.E., Keenan, P. and Vistnes, J. Trends in Health Insurance at Private Employers, 2008–2018. Statistical Brief #524. July 2019. Agency for Healthcare Research and Quality, Rockville, MD. https://meps.ahrq.gov/mepsweb/data_files/publications/st524/stat524.shtml

[iv] White, Chapin and Christopher Whaley, Prices Paid to Hospitals by Private Health Plans Are High Relative to Medicare and Vary Widely: Findings from an Employer-Led Transparency Initiative. Santa Monica, CA: RAND Corporation, 2019. https://www.rand.org/pubs/research_reports/RR3033.html. https://www.hcup-us.ahrq.gov/faststats/NationalTrendsServlet?measure1=04&characteristic1=01&time1=10&measure2=03&characteristic2=01&time2=10&expansionInfoState=hide&dataTablesState.

[v] https://healthcostinstitute.org/images/pdfs/ARM2019_ER_Posterv2.pdf. https://healthcostinstitute.org/emergency-room/er-facility-prices-charges-2009-2016 John Hargraves, Kevin Kennedy ER facility prices grew in tandem with faster-growing charges from 2009-2016. ER spending among the commercially insured continued to rise in 2016, driven by the price and use of high severity cases (2009-2016) John Hargraves; Kevin Kennedy https://healthcostinstitute.org/emergency-room/er-spending-among-the-commercially-insured-continued-to-rise-in-2016-driven-by-the-price-and-use-of-high-severity-cases-2009-2016 https://www.cdc.gov/nchs/data/nhamcs/web_tables/2017_ed_web_tables-508.pdf
Table 20. Medication therapy and number of medications mentioned at emergency department visits: United States, 2017 National Hospital Ambulatory Medical Care Survey: 2017 Emergency Department Summary Tables

[vi] Health Care Cost Institute, 2018 HEALTH CARE COST AND UTILIZATION REPORT, February 2020 https://healthcostinstitute.org/images/pdfs/HCCI_2018_Health_Care_Cost_and_Utilization_Report.pdf

[vii] Rui P, Okeyode T. National Ambulatory Medical Care Survey: 2016 National Summary Tab• Initial cost exposure is strongly linked to list prices, and averaged $79 in 2013, but has risen to $121 in 2017 on average, from the combined effects of rising drug list prices and the rising number of patients with insurance deductibles https://www.iqvia.com/-/media/iqvia/pdfs/institute-reports/medicine-use-and-spending-in-the-us-a-review-of-2017-and-outlook-to-2022.pdf?&_=1588965554665 Medicine Use and Spending in the U.S. A Review of 2017 and Outlook to 2022. In 2016, median retail unit price (RUP), the price per pill or dose was $0.45 for private insurance
Miller, G.E., Hill, S.C., and Ding, Y. Retail Drug Prices, Out-of-Pocket Costs, and Discounts and Markups Relative to List Prices: Trends and Differences by Drug Type and Insurance Status, 2011 to 2016. Research Findings #44. October 2019. Agency for Healthcare Research and Quality, Rockville, MD. https://meps.ahrq.gov/data_files/publications/rf44/rf44.pdf https://www.cdc.gov/nchs/data/ahcd/namcs_summary/2016_namcs_ web_tables.pdf

[viii] Owens PL, Fingar KR, McDermott KW, Muhuri PK, Heslin KC. Inpatient stays involving mental and substance use disorders, 2016: Statistical brief# 249. https://www.hcup-us.ahrq.gov/reports/statbriefs/sb249-Mental-Substance-Use-Disorder-Hospital-Stays-2016.jsp Mean cost per stay $7,100 Mean cost per day 1,400 ALOS 6.4 days

[ix] Olfson M, Marcus SC. National trends in outpatient psychotherapy. American Journal of Psychiatry. 2010 Dec;167(12):1456-63. https://ajp.psychiatryonline.org/doi/full/10.1176/appi.ajp.2010.10040570

[x] Fee schedule for community/private mental health centers. Effective July 1, 2019. http://www.medicaid.ms.gov/wp-content/uploads/2014/03/CommunityMentalHealthCenter.pdf 90846 $78l69

[xi] Agency for Healthcare Research and Quality. Number of people with purchase in thousands by therapeutic class, United States, 2016-2017. Medical Expenditure Panel Survey. Generated interactively: Mon Aug 31, 2020. Agency for Healthcare Research and Quality. Total expenditures in millions by therapeutic class, United States, 2016-2017. Medical Expenditure Panel Survey. Generated interactively: Mon Aug 31, 2020. https://meps.ahrq.gov/mepstrends/hc_pmed/

[xii] Fee schedule for community/private mental health centers. Effective July 1, 2019. http://www.medicaid.ms.gov/wp-content/uploads/2014/03/CommunityMentalHealthCenter.pdf

[xiii] Fee schedule for community/private mental health centers. Effective July 1, 2019. http://www.medicaid.ms.gov/wp-content/uploads/2014/03/CommunityMentalHealthCenter.pdf

[xiv] Fee schedule for community/private mental health centers. Effective July 1, 2019. http://www.medicaid.ms.gov/wp-content/uploads/2014/03/CommunityMentalHealthCenter.pdf S9480 intensive outpatient psychiatric (this is all inclusive and component parts may not be billed separately.

[xv] The average price of substance use admissions grew even more, rising from $8,641 in 2014 to $11,598 in 2018, an increase of nearly $3,000. Health Care Cost Institute, 2018 HEALTH CARE COST AND UTILIZATION REPORT, February 2020 https://healthcostinstitute.org/images/pdfs/HCCI_2018_Health_Care_Cost_and_Utilization_Report.pdf

[xvi] Owens PL, Fingar KR, McDermott KW, Muhuri PK, Heslin KC. Inpatient stays involving mental and substance use disorders, 2016: Statistical brief# 249. https://europepmc.org/article/med/31063293 TRICARE-Authorized Residential Treatment Centers - Reimbursement Rates https://health.mil/Military-Health-Topics/Business-Support/Rates-and-Reimbursement/MHSUD-Facility-Rates

[xvii] Melek SP, Perlman D, Davenport S. Addiction and mental health vs. physical health: Analyzing disparities in network use and provider reimbursement rates. Seattle, Milliman. 2017 Dec. http://www.equitasproject.org/wp-content/uploads/2017/09/NQTLDisparityAnalysis.pdf

[xviii] Costa M, Plant RW, Feyerharm R, Ringer L, Florence AC, Davidson L. Intensive Outpatient Treatment (IOP) of Behavioral Health (BH) Problems: Engagement Factors Predicting Subsequent Service Utilization. Psychiatric Quarterly. 2020 Feb 10:1-3. https://link.springer.com/article/10.1007%2Fs11126-019-09681-w TRICARE Reimbursement Manual 6010.61-M, April 1, 2015 https://manuals.health.mil/pages/DisplayManualHtmlFile/TR15/49/AsOf/TR15/C7S2.html TRICARE-Authorized Residential Treatment Centers - Reimbursement Rates https://health.mil/Military-Health-Topics/Business-Support/Rates-and-Reimbursement/MHSUD-Facility-Rates

[xix] Center for Prevention and Health Services. *An Employer's Guide to Workplace Substance Abuse: Strategies and Treatment Recommendations.* 2009.
[xx] https://www.bls.gov/opub/ted/2016/employer-provided-quality-of-life-benefits-march-2016.htm
[xxi] Attridge M, Cahill T, Granberry SW, Herlihy PA. The National Behavioral Consortium industry profile of external EAP vendors. Journal of Workplace Behavioral Health. 2013 Oct 1;28(4):251-324.
[xxii] Substance Abuse and Mental Health Services Administration. Supporting Our Greatest Resource: Addressing Substance Use, Misuse and Relapse in the Addiction Treatment Workforce. https://www.naadac.org/assets/2416/substanceuse_misusetoolkit9.pdf.
[xxiii] Center for Prevention and Health Services. *An Employer's Guide to Workplace Substance Abuse: Strategies and Treatment Recommendations.* 2009.