

Opioid mortality in rural communities

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ABSTRACT

Opioid mortality has become a significant medical and economic burden in the United States, accounting for over 66.3% of drug-related overdoses and \$78 billion dollars in health care costs. The current US “opioid crisis” has continued to grow with an estimated 2.5 million patients being diagnosed with opioid use disorders in 2016. In response, policy makers and government agencies have initiated several programs to mitigate the adverse effects of opioids through expanding access and delivery of evidenced-based treatment and rehabilitation programs. Rural communities remain significant risk factors for opioid overdose and mortality in areas lacking access to opioid therapy. Despite measures to provide access to rehabilitation and medical therapy, the opioid-related mortality rate in rural areas has increased significantly due to greater opioid prescriptions in these areas, an out-migration of young adults, greater rural social and kinship network connections, and economic stressors. However, limited opioid-related mortality data in rural regions, such as West Texas, impede further analysis and investigation into effective programs for preventing and treating opioid overdoses in these communities.

Keywords: Opioid, addiction, mortality, and rural communities

Opioid mortality has become a significant medical and economic burden in the United States accounting for over 66.3% of drug-related overdoses and \$78 billion dollars in health care costs.¹ The current US “opioid crisis” has continued to grow with an estimated 2.5 million patients being diagnosed with opioid use disorders in 2016.² Current estimates suggest opioid use disorders affect between 2.1–6.0 million patients in the US (292.1 per 100,000).^{3,4} Despite increased measures to provide patients with opioid use disorders access to rehabilitation and medical therapy, the opioid-related mortality rate in rural areas ♦ has significantly increased.¹ From 1999 to 2016, opioid-related mortality increased by 158% in large central metro

counties, 507% in large fringe metro counties, 388% in medium metro counties, 584% in small metro counties, 682% in micropolitan nonmetro counties, and 721% in noncore nonmetro counties.¹

The Centers for Disease Control and Prevention (CDC) and state health organizations found higher rates of opioid-related deaths in rural areas than in urban areas, especially in rural counties with higher opioid prescribing rates.^{5–7} Furthermore, the CDC found that patients in rural counties were more likely to be prescribed opioids during routine care than patients in major metropolitan areas.⁵ A study comparing rural and urban admissions with drug abuse in Rockville, Maryland, reported that rural admissions

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♦ The US government has at least 15 different official definitions for the word “rural”. The Census Bureau defines rural as “any place outside a town, city, or urban cluster with more than 2,500 residents.”

were more likely than urban admissions to report primary abuse of alcohol (49.5% vs. 36.1%) or non-heroin opiates (10.6% vs. 4.0%), and urban admissions were more likely to report primary abuse of heroin (21.8% vs. 3.1%) or cocaine (11.9% vs. 5.6%). Rural substance abuse admissions were also more likely to report starting their primary substance abuse between the ages of 15 and 17 (32.1% vs. 26.7%) and less likely to report first use at age 18 or older (32.7% vs. 45.6%) than urban substance abuse admissions.⁸

The high rate of opioid use and mortality in rural areas is believed to result from “greater opioid prescriptions in rural areas, creating availability from which illegal markets can arise; an out-migration of young adults; greater rural social and kinship network connections, which may facilitate drug diversion and distribution; and economic stressors that may create vulnerability to drug use more generally.”⁹ Rural communities tend to be poorer than urban communities, which is further compounded by decreased socioeconomic status, poor health behavior, and reduced access to health care services.¹ Furthermore, a majority of rural communities do not have access to drug treatment programs and providers, detoxification programs, and medication assisted treatments.¹ The lack of effective interventions for reducing heroin-related and fentanyl overdoses also increases the risk of opioid-related mortality in rural communities.¹ For example, drug monitoring programs are effective against prescription opioid abuse, and naloxone distribution may be effective in treating heroin and fentanyl overdoses. Without these and other interventions to reduce harm from opioids abuse, the likelihood of patient mortality from an opioid overdose increases significantly.

In response, policy makers and government agencies have initiated several programs to mitigate the adverse effects of opioids by expanding access and delivery of evidence-based treatment, such as methadone and buprenorphine, and rehabilitation programs.³ Despite its effectiveness, methadone has fallen out of favor due to routine shortages and federal and state government regulations restricting patient access to a limited number of clinics.³ With the new Federal Substance Abuse and Mental Health Services Agency (SAMHSA) policies, buprenorphine has quickly replaced methadone due to its

effectiveness in reducing opioid relapses and opioid mortality while allowing patients greater access and delivery.³ However, many of the opioid treatment programs have been slow to expand and may be unavailable in rural communities.³

A study on opioid treatment access to methadone and/or buprenorphine in US counties found that 71.2% of rural counties lacked consistent access to treatment for opioid addiction.³ Among the 2.2% of physicians allowed to prescribe buprenorphine, 41.6% were psychiatrists, and 36.7% were in primary care specialties (family or internal medicine) with the remaining coming from pain management, physical medicine, and rehabilitation specialties.¹⁰ The low percentage of buprenorphine prescribing physicians is due to tight regulations and requirements to complete 8 hours of special training to receive a waiver from the Drug Enforcement Agency (DEA) to prescribe buprenorphine.¹¹ Rural counties have fewer physicians with waivers per 100,000 residents. Among the 829,044 physicians in the US, 83.6% live in urban counties in which 90.4% (18,255 physicians) of physicians with waivers practice.¹⁰ In contrast, 2.4% of the US population live in the smallest and most remote counties which have 0.9% of all physicians and 1.3% of the physicians with buprenorphine waivers.¹⁰ As a result, most clinics prescribing buprenorphine are located on the East and West coasts; many Midwestern rural regions, particularly West Texas, do not have certified physicians, forcing patients to travel long distances to receive outpatient buprenorphine treatment.¹⁰

The mortality rate due to opioids in West Texas rural counties is reportedly one of the lowest in the US, but this is likely due to the fact that a majority of the counties do not report opioid-related mortality.^{1,3} The low mortality rate is even more questionable given the recent investigation by the *Washington Post* into the number of prescription doses the major pharmaceutical manufactures and pharmacies distributed into each county in the US from 2006–2012.¹² The *Washington Post* reported that six of the major opioid pharmaceutical manufacturers distributed over 75% of the 76 billion oxycodone doses with the highest numbers of doses being distributed in rural states, such as West Virginia, Kentucky, and South Carolina. Furthermore, opioid deaths increased in counties in

which the most doses were distributed per person.¹² In Texas, 5,432,109,643 prescription opioid doses (7.1% of the total opioid prescription doses between 2006–2012) were supplied by Walgreen Co. and Actavis Pharma, Inc., and distributed by Omnicare of Fort Worth Pharmacy.¹² The overall opioid-mortality rate in Texas was estimated at 5.1 deaths per 100,000 persons compared to the national average of 14.6 deaths per 100,000.¹³ However, the opioid-mortality rate calculation in Texas did not distinguish among urban, suburban, and rural locations.¹³ More investigation in West Texas and other rural communities is needed to determine which factors have led to increased opioid-related mortality in these regions.

Rural communities remain important high risk locations for opioid-related overdose and mortality. More data on the risk factors and demographic information of rural opioid-mortality cases can provide important information about the burden and context of drug use, substance abuse disorders, and fatal overdoses that can help state and federal health organizations initiate more effective opioid treatment programs for these communities.¹⁴ Furthermore, creating large databases on opioid and other substance abuse in rural communities can help state and federal agencies develop coordinated strategies to decrease the supply of illicit drugs.¹⁴ Increased access to treatment for opioid use disorders through medication, such as buprenorphine, and cognitive behavior therapy may also reduce hospitalizations and infections associated with drug use.¹⁴ To improve access and delivery of buprenorphine, telemedicine programs using the Internet allow physicians to evaluate and prescribe buprenorphine therapy to patients living in remote communities. A recent retrospective study by West Virginia University found that telemedicine programs for opioid use disorder produced similar reductions in opioid overdoses and relapses compared to traditional face-to-face encounters between the patients and physicians.¹¹ Finally, support training for families, paramedics, and law enforcement in smaller communities in the use of naloxone for opioid overdoses in high risk patients can reduce opioid-related mortality in these communities.¹⁴ There is a significant need to collect accurate and larger mortality data sets that can help identify the risk factors and unique

challenges contributing to the rise of opioid deaths in rural communities.

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