

Cognitive Decline and Dementia in Ohio

October 2020



Ohio

Department
of Health

Introduction

Cognitive decline, which is often associated with early signs of Alzheimer’s disease and other dementias, is the deterioration of the activities of thinking, understanding, learning, and remembering. Cognitive decline is defined in this report as the prevalence (percentage) of adults age 45 and older who reported having increased confusion or memory loss in the past 12 months that is happening more often or is getting worse.

Dementia is not a specific disease but is rather a general term for the impaired ability to remember, think, or make decisions that interferes with doing everyday activities. There are four main types of dementia described in this report: Alzheimer’s disease; unspecified dementia; vascular dementia; and other degenerative diseases of nervous system, not elsewhere classified. Alzheimer’s disease is the most common cause of dementia in older adults. Alzheimer’s disease is a progressive brain disorder that slowly destroys memory and thinking skills and is characterized by changes in the brain—including amyloid plaques and neurofibrillary, or tau, tangles—that result in loss of neurons and their connections. About one-third of all people age 85 and older may have Alzheimer’s disease. The Alzheimer’s Association estimates that 220,000 people age 65 and older have Alzheimer’s disease in Ohio, with 30,000 more expected by 2025. Unspecified dementia includes senile or presenile dementia. Vascular dementia is caused by conditions that damage the blood vessels in the brain, depriving the brain of oxygen. Other types of dementia, such as Lewy body dementia, frontotemporal dementia, alcohol-related dementia, and senile degeneration of the brain, are included in the category “Other degenerative diseases of nervous system, not elsewhere classified.”

Key Findings

- In Ohio in 2019, 11.6% of adults age 45 and older reported having increased confusion or memory loss (cognitive decline) that is happening more often or is getting worse during the past 12 months.
- The prevalence of cognitive decline was significantly higher for Ohio adults with other chronic health conditions, including high blood pressure and high blood cholesterol.
- Alzheimer’s disease claimed the lives of 5,396 Ohioans in 2018, at an age-adjusted rate of 39.4 per 100,000 persons.
- Women accounted for 70% of Alzheimer’s disease deaths in Ohio in 2018.
- Whites had a higher death rate for Alzheimer’s disease in 2018 compared with Blacks and Asians/Pacific Islanders in Ohio.
- Death rates for Alzheimer’s disease in Ohio increased from 2009 to 2018.
- In 2018, 5,646 Ohioans died from organic dementia, which includes both vascular dementia and unspecified dementia, at an age-adjusted rate of 36.3 per 100,000.



Prevalence of Cognitive Decline

As shown in Table 1, in Ohio in 2019, 11.6% of adults age 45 and older reported having increased confusion or memory loss (cognitive decline) that is happening more often or is getting worse during the past 12 months.

The prevalence of cognitive decline was not significantly different between males and females, whites and Blacks, or adults age 45-54, 55-64, and 65 and older in Ohio in 2019.

The prevalence of cognitive decline decreases with increasing annual household income. In 2019, Ohioans who earned less than \$15,000 per year were five times more likely to have cognitive decline, compared with those earning \$75,000 or more per year.

The prevalence of cognitive decline decreases with increasing levels of education. In 2019, college graduates had a significantly lower prevalence of self-reported cognitive decline (7.2%) than those who had not completed high school (18.9%), high school graduates (11.8%), and those who had some college education (12.5%).

Information on cognitive decline was obtained from the Ohio Behavioral Risk Factor Surveillance System (BRFSS). The BRFSS is an annual survey designed to collect data on diseases, health behaviors, clinical risk factors, and injuries through landline and cell phone interviews of randomly selected adults age 18 and older. The Ohio Department of Health conducts the Ohio BRFSS in conjunction with the Centers for Disease Control and Prevention.

Table 1. Prevalence of Cognitive Decline¹ Among Ohio Adults (Age 45+) by Demographics, Ohio, 2019

| Demographic | Percent | 95% CI |
|-----------------------------------|---------|-----------|
| Total | 11.6 | 10.4-12.9 |
| Age | | |
| Age 50-54 | 9.9 | 7.4-12.4 |
| Age 55-64 | 13.6 | 11.0-16.2 |
| Age 65+ | 11.2 | 9.6-12.8 |
| Sex | | |
| Male | 12.4 | 10.4-14.4 |
| Female | 11.0 | 9.4-12.6 |
| Race/Ethnicity² | | |
| White, non-Hispanic | 11.7 | 10.4-13.0 |
| Black, non-Hispanic | 12.3 | 7.2-17.4 |
| Annual Household Income | | |
| Less than \$15,000 | 26.5 | 19.5-33.4 |
| \$15,000 to \$24,999 | 16.4 | 13.0-19.7 |
| \$25,000 to \$34,999 | 13.3 | 9.3-27.3 |
| \$35,000 to \$49,999 | 10.9 | 7.9-13.9 |
| \$50,000 to \$74,999 | 9.2 | 6.0-12.5 |
| \$75,000 or more | 5.2 | 3.6-6.9 |
| Education | | |
| Less than High School | 18.9 | 13.2-24.6 |
| High School Diploma | 11.8 | 9.8-13.9 |
| Some College | 12.5 | 10.1-24.9 |
| College Graduate | 7.2 | 5.7-8.8 |

Source: 2019 Ohio Behavioral Risk Factor Surveillance System, Ohio Department of Health, 2020.

¹ During the past 12 months, have you experienced confusion or memory loss that is happening more often or is getting worse?

² Estimates for Hispanic, other non-Hispanic, and multiracial adults do not meet the reliability criteria for reporting set by Centers for Disease Control and Prevention.

95% CI = 95% Confidence Interval.

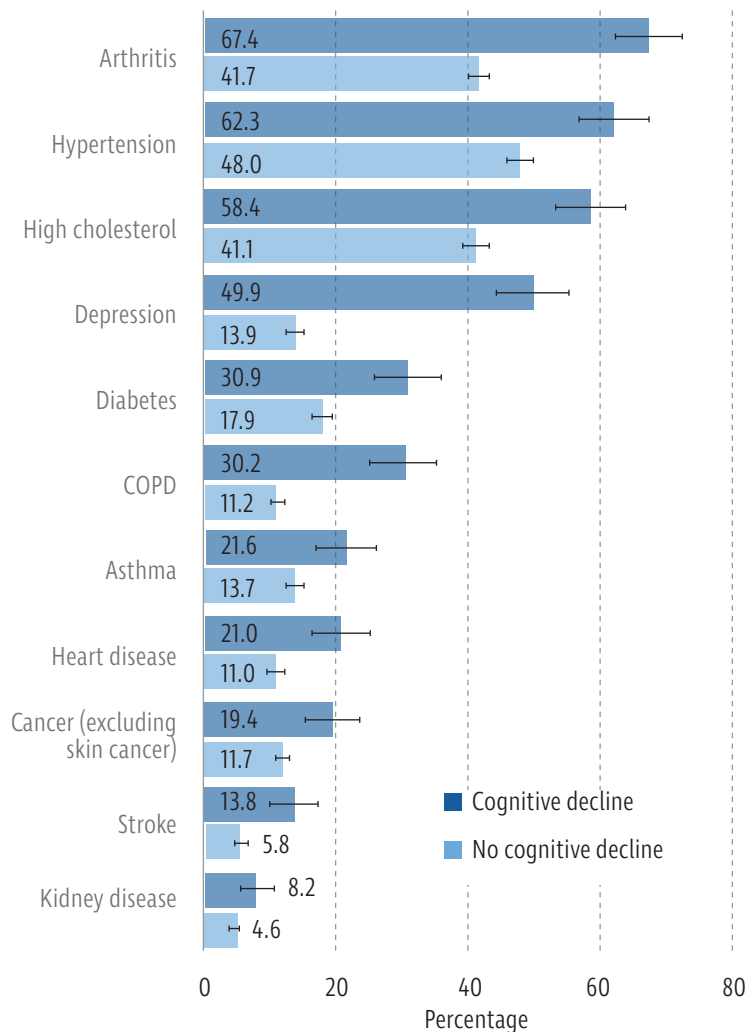
IT IS ESTIMATED THAT **591,000** OHIO ADULTS AGE 45 AND OLDER EXPERIENCED COGNITIVE DECLINE IN 2019.

Sources: Ohio Behavioral Risk Factor Surveillance System, Ohio Department of Health, 2020; U.S. Census Bureau and National Center for Health Statistics.



Cognitive Decline and Chronic Disease

Figure 1. Prevalence of Chronic Diseases Among Adults (Age 45+) With and Without Cognitive Decline, Ohio, 2019



In 2019, the prevalence of chronic diseases was significantly higher among Ohio adults reporting cognitive decline than among those not reporting cognitive decline (Figure 1). The prevalence of arthritis, hypertension (high blood pressure), and high cholesterol was significantly higher among those reporting cognitive decline, compared with those who do not have cognitive decline. The prevalence of depression was nearly four times higher among Ohio adults with cognitive decline. The prevalence of diabetes, chronic obstructive pulmonary disease (COPD), asthma, heart disease, cancer (excluding skin cancer), stroke, and kidney disease were also significantly higher among those reporting cognitive decline.

Source: 2019 Ohio Behavioral Risk Factor Surveillance System, Ohio Department of Health, 2020.
Error bars show upper and lower 95% confidence intervals.

COPD = Chronic obstructive pulmonary disease.

MORE THAN HALF (51%) OF OHIO ADULTS EXPERIENCING COGNITIVE DECLINE HAVE NEVER DISCUSSED THEIR CONFUSION OR MEMORY LOSS WITH A HEALTHCARE PROFESSIONAL.

Source: 2019 Ohio Behavioral Risk Factor Surveillance System, Ohio Department of Health, 2020.

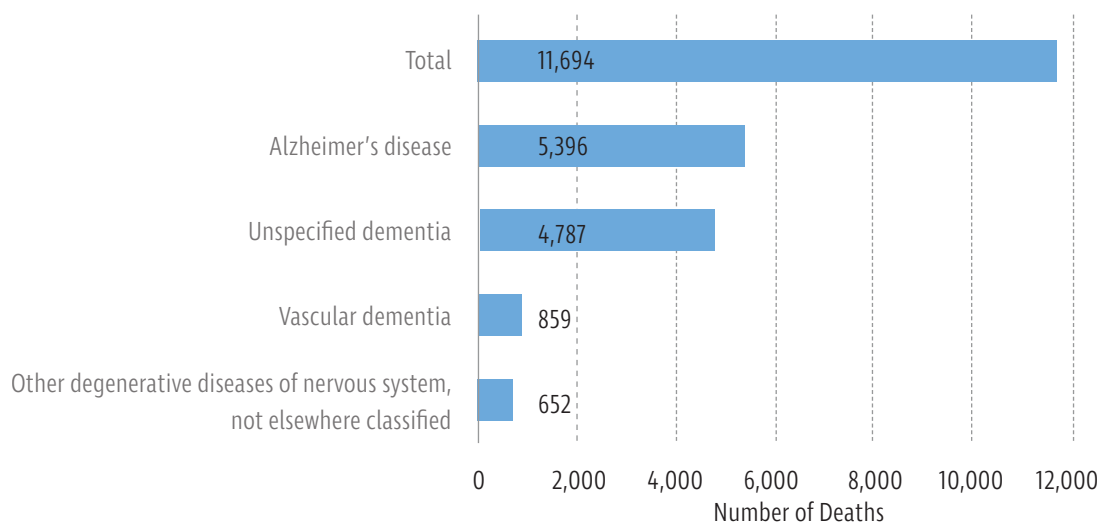


Dementia Mortality

Alzheimer's disease was ranked as the sixth leading cause of death in the United States in 2018, the latest year of national mortality data available. Alzheimer's disease accounts for about one-half of all dementia deaths. Ohio ranked 19th among the 50 states and Washington DC in Alzheimer's disease mortality in 2018, with an age-adjusted death rate of 34.9 per 100,000, compared with the U.S. rate of 30.5 per 100,000.

In Ohio, 11,694 deaths were attributed to dementia as the underlying cause of death in 2018 (Figure 2). Alzheimer's disease accounted for 46% (5,396) of all deaths due to dementia in 2018. Unspecified dementia accounted for 41% (4,787) of dementia deaths in Ohio in 2018. Vascular dementia accounted for 7% (859) of Ohio dementia deaths in 2018, and other degenerative diseases of nervous system, not elsewhere classified, accounted for 6% (652) of Ohio dementia deaths in 2018.

Figure 2. Number of Deaths Attributed to Dementia and Specific Types of Dementia, Ohio, 2018



Source: Bureau of Vital Statistics, Ohio Public Health Data Warehouse, Ohio Department of Health, 2020.

Alzheimer's Disease: Deaths by Sex and Race

Table 2. Number and Age-Adjusted Rates of Alzheimer's Disease Deaths per 100,000 by Sex and Race, Ohio, 2018

| | | Ohio Deaths | Ohio Rate |
|-------|------------------------|-------------|-----------|
| Total | | 5,396 | 34.9 |
| Sex | Male | 1,621 | 27.9 |
| | Female | 3,775 | 39.1 |
| Race | White | 5,016 | 36.0 |
| | Black | 353 | 26.5 |
| | Asian/Pacific Islander | 19 | 12.3 |

More than twice the number of females (3,775) died of Alzheimer's disease than males (1,621) in Ohio in 2018. Whites had a higher death rate (36.0 per 100,000) from Alzheimer's disease in 2018 than Blacks (26.5 per 100,000) and Asians/Pacific Islanders (12.3 per 100,000) in Ohio (Table 2).

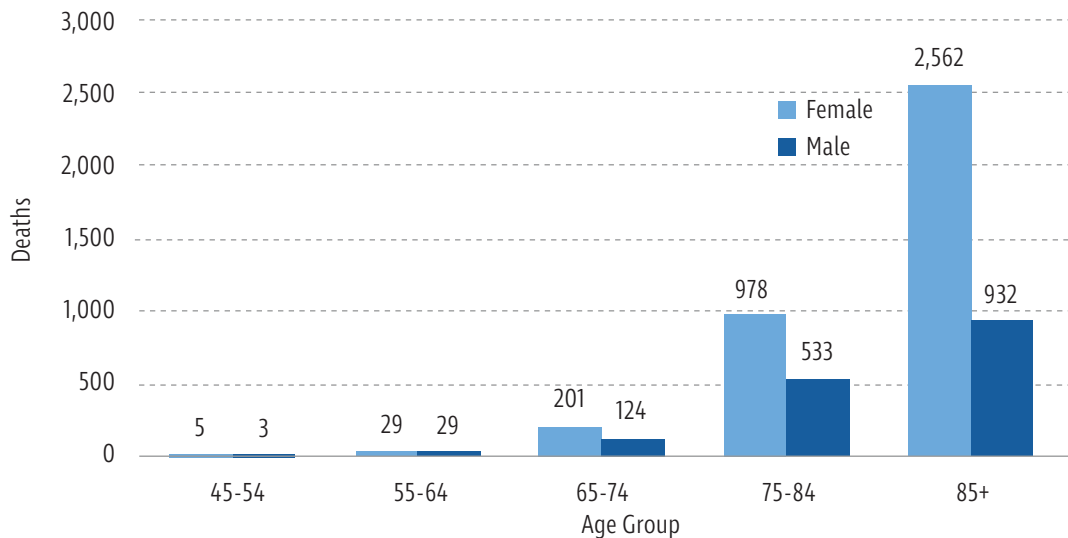
Source: Bureau of Vital Statistics, Ohio Public Health Data Warehouse, Ohio Department of Health, 2020.



Alzheimer's Disease: Deaths by Age Group

Women age 85 and older had the highest number of deaths from Alzheimer's Disease (2,562 deaths) in Ohio in 2018 (Figure 3).

Figure 3. Number of Alzheimer's Disease Deaths by Sex and Age Group, Ohio, 2018

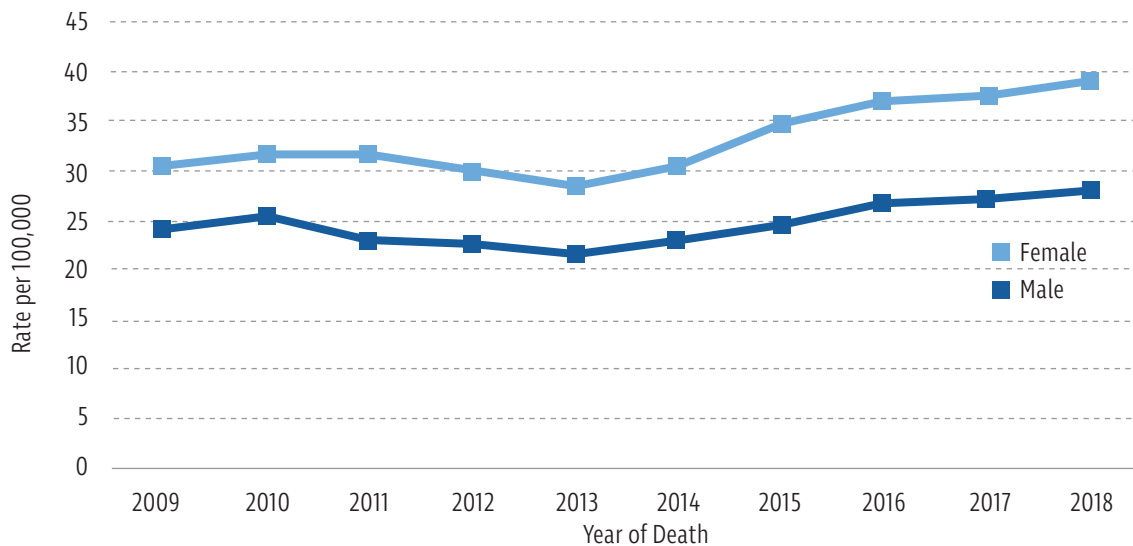


Source: Bureau of Vital Statistics, Ohio Public Health Data Warehouse, Ohio Department of Health, 2020.

Alzheimer's Disease: Mortality Trends

As shown in Figure 4, the age-adjusted death rate for Alzheimer's disease in Ohio increased 28% for women and 16% for men from 2009 to 2018.

Figure 4. Age-adjusted Alzheimer's Disease Death Rate per 100,000 by Year, Ohio, 2009-2018



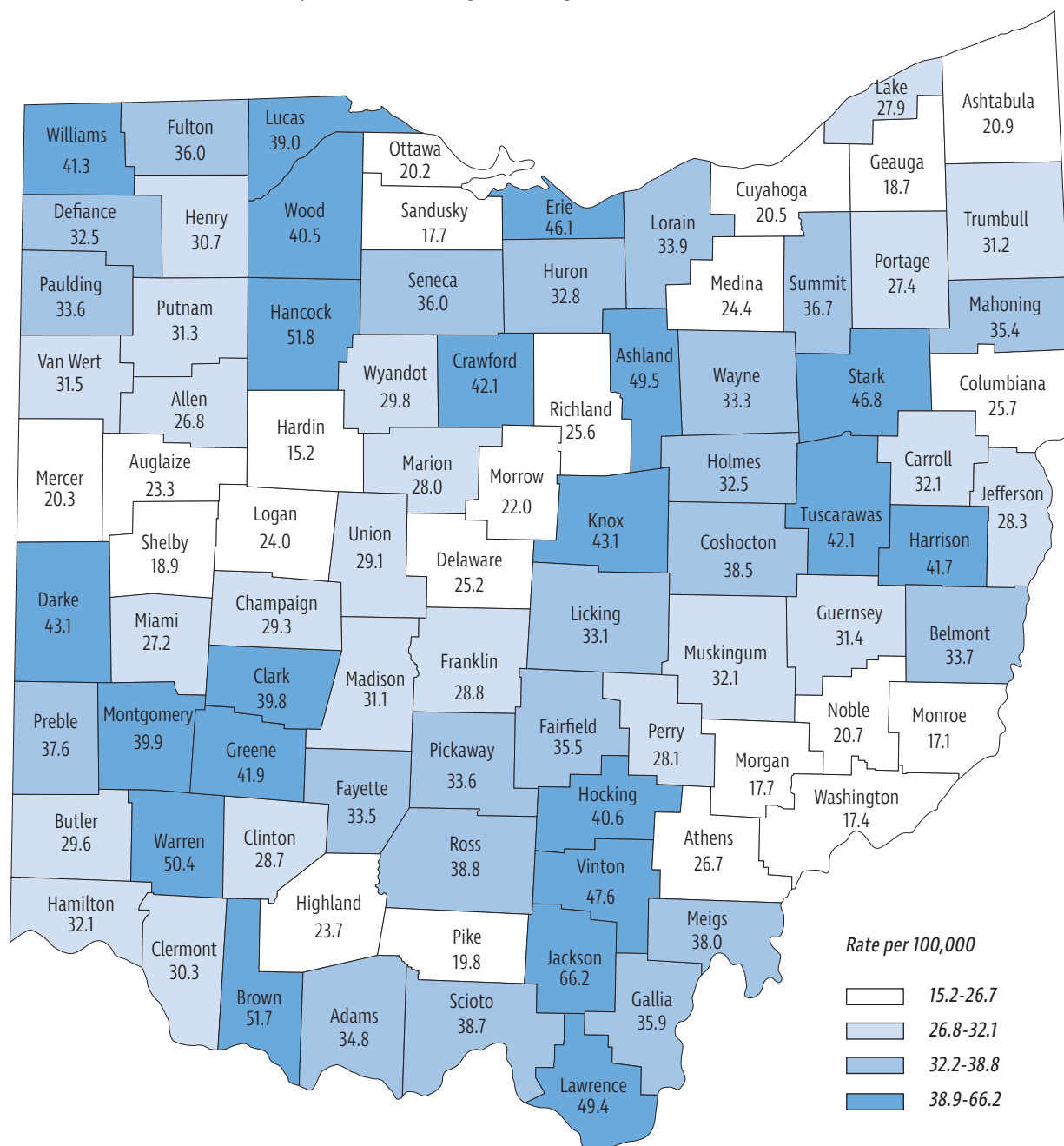
Source: Bureau of Vital Statistics, Ohio Public Health Data Warehouse, Ohio Department of Health, 2020.



Alzheimer's Disease: Mortality Rates by County

The Alzheimer's disease mortality rate in Ohio varied by county during the five-year period 2014-2018 (Figure 5). The county with the highest average annual age-adjusted death rate (Jackson County, 66.2 per 100,000) had a rate four times higher than the county with the lowest rate (Hardin County, 15.2 per 100,000).

Figure 5. Average Annual Age-adjusted Alzheimer's Disease Death Rate per 100,000 by County, Ohio, 2014-2018



Source: Bureau of Vital Statistics, Ohio Public Health Data Warehouse, Ohio Department of Health, 2020.



Vascular and Unspecified Dementia (Organic Dementia): Deaths by Sex and Race

Vascular dementia and unspecified dementia combined claimed the lives of 5,646 Ohioans in 2018, at an age-adjusted rate of 36.3 per 100,000 persons. More than twice the number of females (3,820) died of vascular and unspecified dementia combined than males (1,826) in Ohio in 2018. Blacks had a higher death rate (38.8 per 100,000) from vascular and unspecified dementia combined in 2018, compared with whites (36.2 per 100,000) and Asians/Pacific Islanders (16.5 per 100,000) (Table 3).

Table 3. Number and Age-Adjusted Rates of Vascular and Unspecified Dementia Deaths per 100,000 by Sex and Race, Ohio, 2018

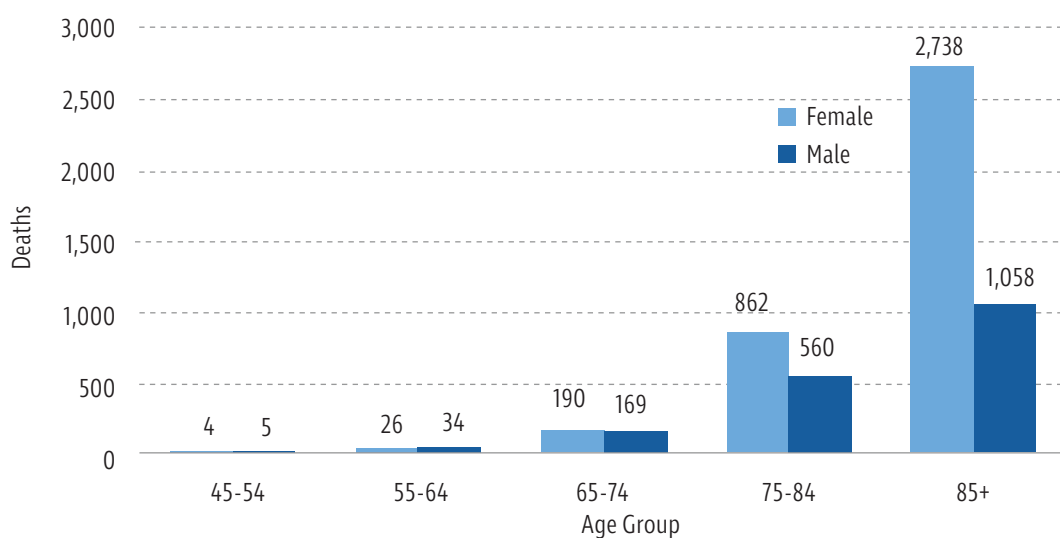
| | | Ohio Deaths | Ohio Rate |
|--------------|------------------------|--------------|-------------|
| Total | | 5,646 | 36.3 |
| Sex | Male | 1,826 | 31.3 |
| | Female | 3,820 | 39.0 |
| Race | White | 5,080 | 36.2 |
| | Black | 526 | 38.8 |
| | Asian/Pacific Islander | 26 | 16.5 |

Source: Bureau of Vital Statistics, Ohio Public Health Data Warehouse, Ohio Department of Health, 2020.

Vascular and Unspecified Dementia: Deaths by Age Group

Women age 85 and older had the highest number of deaths from vascular and unspecified dementia combined (2,738 deaths) in Ohio in 2018 (Figure 6).

Figure 6. Number of Vascular and Unspecified Dementia Deaths by Sex and Age Group, Ohio, 2018



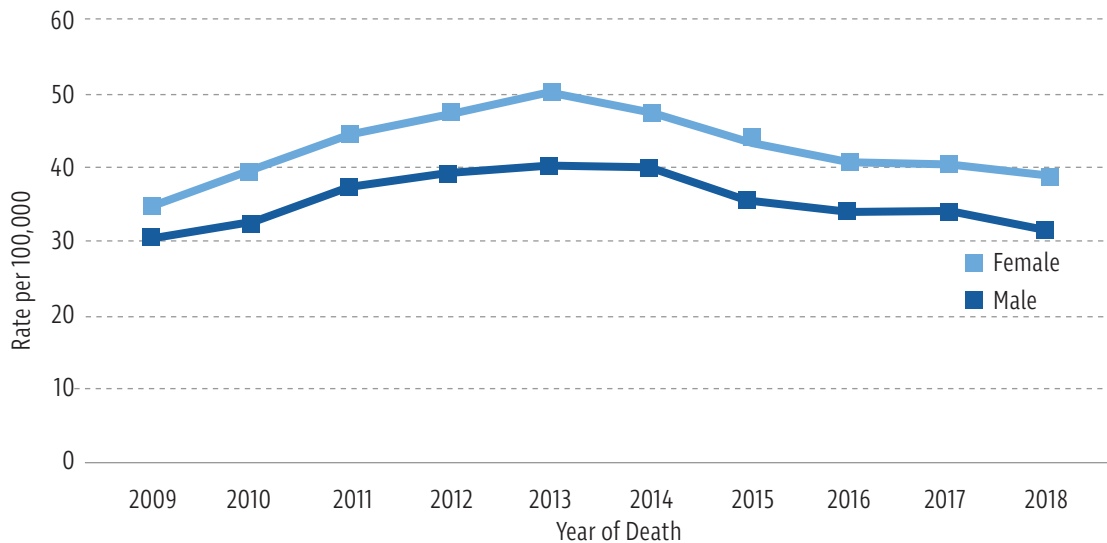
Source: Bureau of Vital Statistics, Ohio Public Health Data Warehouse, Ohio Department of Health, 2020.



Vascular and Unspecified Dementia: Mortality Trends

As shown in Figure 7, the age-adjusted death rate for vascular and unspecified dementia combined in Ohio increased from 2009 to 2013 and then decreased for both women and men through 2018.

Figure 7. Age-adjusted Vascular and Unspecified Dementia Death Rate per 100,000 by Year, Ohio, 2009-2018



Source: Bureau of Vital Statistics, Ohio Public Health Data Warehouse, Ohio Department of Health, 2020.

Did You Know?

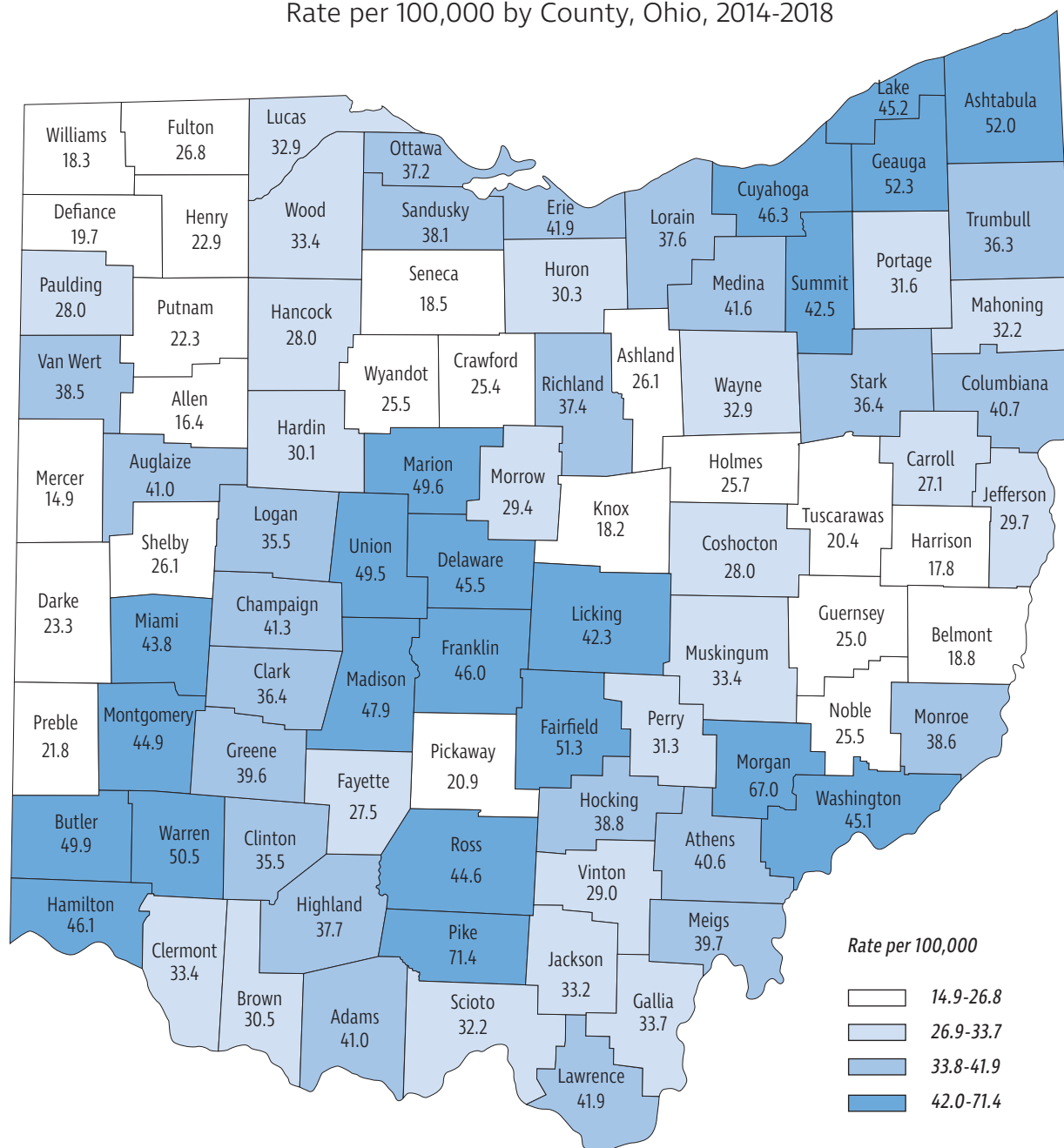
Recent studies indicate that long-term use of strong anticholinergic drugs is associated with an increased risk of dementia. Anticholinergic drugs affect the brain by blocking acetylcholine, a nervous system neurotransmitter that influences memory, alertness, and planning skills. Anticholinergics are prescribed for many conditions commonly occurring in older adults, such as depression, urinary incontinence, irritable bowel syndrome, and Parkinson's disease.



Vascular and Unspecified Dementia: Mortality Rates by County

The mortality rate from vascular and unspecified dementia combined in Ohio varied by county in 2014-2018. The county with the highest average annual age-adjusted death rate (Pike County, 71.4 per 100,000) had a rate nearly five times higher than the county with the lowest rate (Mercer County, 14.9 per 100,000) (Figure 8).

Figure 8. Average Annual Age-adjusted Vascular and Unspecified Dementia Death Rate per 100,000 by County, Ohio, 2014-2018



Source: Bureau of Vital Statistics, Ohio Public Health Data Warehouse, Ohio Department of Health, 2020.



Signs and Symptoms of Dementia

Because dementia is a general term, its symptoms can vary widely from person to person. People with dementia have problems with:

- Memory.
- Attention.
- Communication.
- Reasoning, judgment, and problem solving.
- Visual perception beyond typical age-related changes in vision.

Signs that may point to dementia include:

- Getting lost in a familiar neighborhood.
- Using unusual words to refer to familiar objects.
- Forgetting the name of a close family member or friend.
- Forgetting old memories.
- Not being able to complete tasks independently.

Risk Factors for Dementia

Age: The strongest known risk factor for dementia is increasing age, with most cases affecting those 65 years and older.

Family history: Those who have parents or siblings with dementia are more likely to develop dementia themselves.

Race/ethnicity: In the United States, older Blacks are twice as likely to have dementia than whites, and Hispanics are 1.5 times more likely to have dementia than whites.

Poor heart health: High blood pressure, high blood cholesterol, and smoking increase the risk of dementia if not treated properly.

Traumatic brain injury: Head injuries can increase the risk of dementia, especially if they are severe or occur repeatedly.

Costs

Total annual payments for health care, long-term care, and hospice care for people with Alzheimer's Disease or other dementias are projected to increase from \$305 billion in 2020 to more than \$1.1 trillion in 2050 (in 2020 dollars), according to the Alzheimer's Association's *2020 Alzheimer's Disease Facts and Figures*.

NEW RESEARCH

Combining more healthy lifestyle behaviors was associated with substantially lower risk for Alzheimer's disease in a study that included data from nearly 3,000 research participants.

Those who adhered to at least four of the five specified healthy behaviors were found to have a

60% lower risk of Alzheimer's disease.

The behaviors were:

- Physical activity.
- Not smoking.
- Limiting use of alcohol.
- A high-quality diet.
- Cognitive activities.

From: Dhana K, et al. Healthy lifestyle and the risk of Alzheimer's dementia: Findings from two longitudinal studies.



Technical Notes

Age-Adjusted Rate: A summary rate that is a weighted average of age-specific rates, where the weights represent the age distribution of a standard population (direct adjustment). The mortality rates presented in this report were standardized to the age distribution of the 2000 U.S. Standard Population. Under the direct method, the population was first divided into 11 age groups, i.e., <1, 1-4, 5-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, and 85+, and the age-specific rate was calculated for each age group. Each age-specific rate was then multiplied by the standard population proportion for the respective age group.

Cognitive Decline Prevalence: Proportion of adults (age 45 and older) who reported experiencing confusion or memory loss, in the past 12 months, that is happening more often or is getting worse.

Mortality: The number of deaths during a specified time period (e.g., 2018). Dementia deaths were defined by the International Classification of Diseases, 10th Revision (ICD-10) underlying cause-of-death codes: F01 (vascular dementia), F03 (unspecified dementia), G30 (Alzheimer disease), and G31 (other degenerative diseases of nervous system, not elsewhere classified). Vascular dementia and unspecified dementia are combined as "Organic dementia (F01, F03)" under "Specific Causes of Death (358 Groups)," in accordance with the cause of death coding system currently used in the United States. Ohio mortality data can be publicly accessed through the Ohio Public Health Data Warehouse, available at: <http://publicapps.odh.ohio.gov/EDW/DataBrowser/Browse/Mortality>.

Population Data for Calculating Rates: Rates were calculated using population estimates from the U.S. Census Bureau and National Center for Health Statistics. Population data were compiled from bridged-race intercensal population estimates for July 1, 2005-July 1, 2009 (released 6/26/2014) and vintage 2018 bridged-race postcensal population estimates for July 1, 2010-July 1, 2018 (released 6/25/2019).

Prevalence: The number/percentage of existing cases of a disease, condition, or risk factor in the population during a specific time period.

Rate: The number of cases or deaths per unit of population (e.g., per 100,000 persons) during a specified time period (e.g., 2018). For mortality, rates may be unstable and are not presented when the count is less than 10.

Sources of Information

Alzheimer's Association: <https://www.alz.org/alzheimers-dementia/facts-figures>

National Institute on Aging: <https://www.nia.nih.gov/health/alzheimers>

Kramarow EA, Tejada-Vera B. Dementia Mortality in the United States, 2000–2017. National Vital Statistics Reports; vol 68 no 2. Hyattsville, MD: National Center for Health Statistics. 2019.

Centers for Disease Control and Prevention: <https://www.cdc.gov/aging/dementia/index.html>



Acknowledgements

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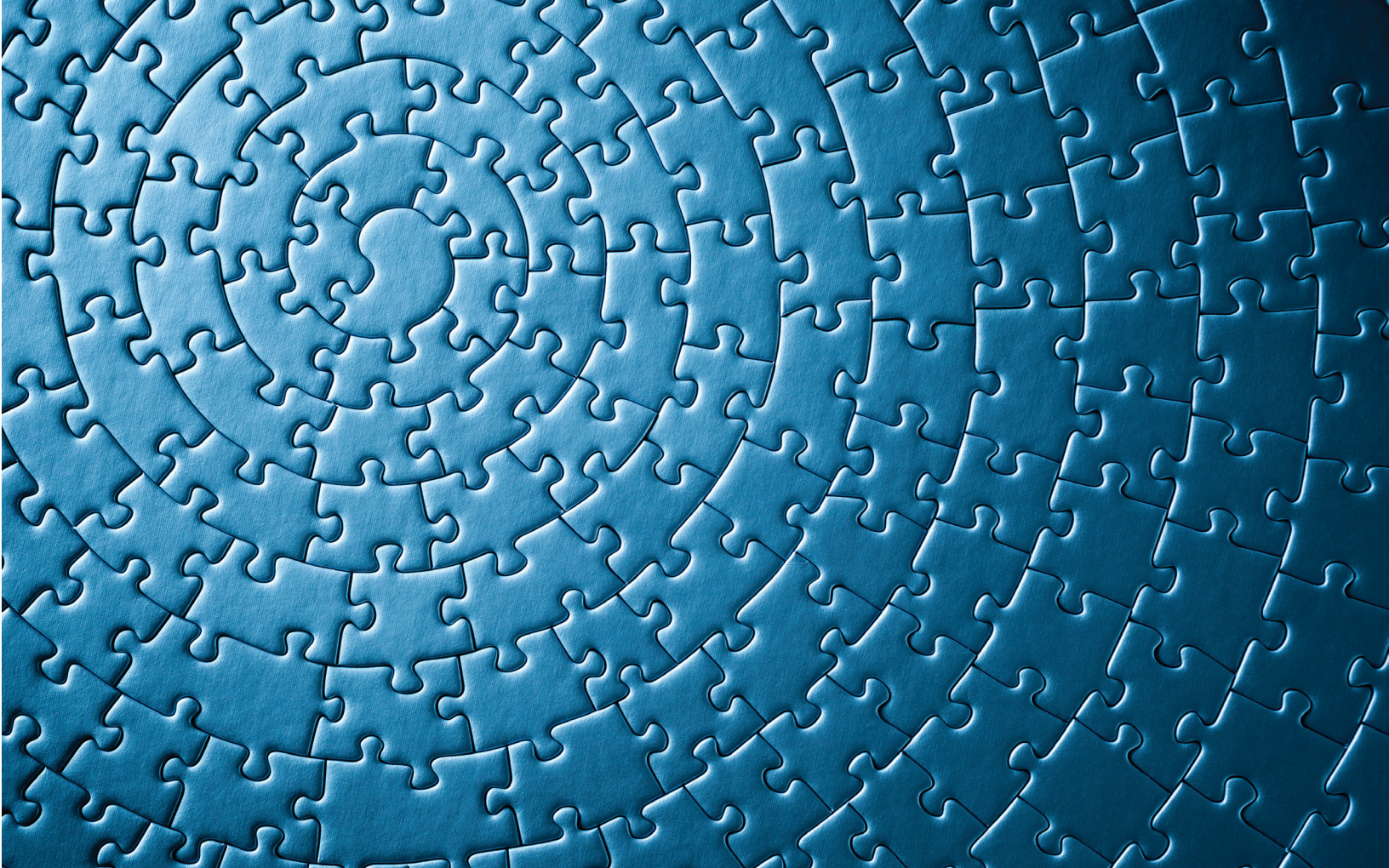
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