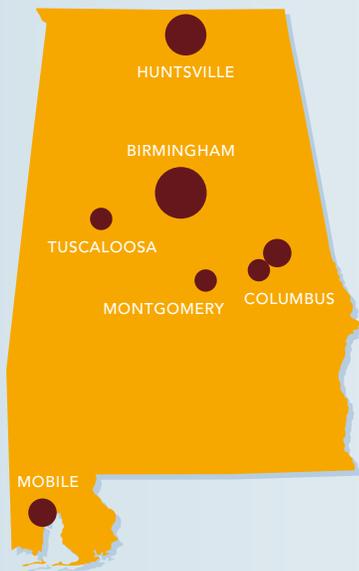


ALABAMA

Medical researchers funded by the National Institutes of Health (NIH) are working every day to improve health, discover cures and provide hope to people the world-over affected by disease. This work, however, has a secondary benefit: it supports employment and economic activity across the United States, including in Alabama.



ADDING TO ALABAMA'S ECONOMY

In FY2017, 21 institutions in Alabama received



644 research awards



totaling nearly \$300 million

While the bulk of the research awards went to the University of Alabama at Birmingham, many others supported a range of institutions and businesses throughout the state. This research funding, when cycled through the economy, generated **\$710 million in total sales** for Alabama businesses:



Supporting **more than 4,600 jobs** in Alabama; and



Generating approximately **\$54 million in tax and fee revenues** for state, county and municipal governments statewide.

BOOSTING THE LABOR FORCE IN ALABAMA

Jobs in the scientific R&D sector in Alabama pay on average 2.4 times more than those in other sectors. In 2017, this was \$86,300 vs. \$36,100. And for young workers (under 25), the difference was even greater — 2.7 times the average pay in other fields, \$33,500 vs. \$12,400. This wage difference, coupled with 50% job growth for young workers in the scientific R&D sector since 2014 (compared to only 9% across all sectors), bodes well for Alabama's future growth.



REDUCING PUBLIC HEALTH COSTS

In Alabama, **40% of the population** is enrolled in Medicare and Medicaidⁱ, far exceeding the national average of 35%, and spending on these programs amounts to **8% of Alabama's total GDP**, also above the national average of 6%. The prevalence of chronic disease in Alabama is much higher than in other states.ⁱⁱ

COMPARED TO OTHER STATES, ALABAMA RANKS:

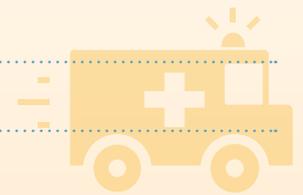
3rd for rate of **diabetes**

5th for rate of **obesity**

6th for rate of **cardiovascular disease**

8th for rate of deaths from **Alzheimer's disease**

11th for rate of deaths from **cancer**





Images: University of Alabama at Birmingham

MEDICAL RESEARCH AT WORK IN ALABAMA

Alabama serves as ground zero for a major national study of the geographic and racial differences in the occurrence of stroke. While stroke is the fifth leading cause of death among U.S. adults, blacks are more likely to die from stroke than whites. Regardless of race, those living in the “Stroke Belt,” a cluster of eight southeastern states including Alabama, are far more likely than those in the rest of the United States to suffer from stroke or other cardiovascular disease.

The Reasons for Geographic and Racial Differences in Stroke (REGARDS) study led by the University of Alabama at Birmingham School of Public Health aims to understand the underlying reasons for these differences. Since 2003, researchers have followed more than 30,000 study participants from across the country gaining critical data about differences in stroke incidence and mortality. For instance, researchers have found that living in a Stroke Belt state early in life — more so than as an adult — contributed to a greater risk of strokeⁱⁱⁱ. Researchers also have found that the lower a neighborhood’s socioeconomic status, the higher a person’s stroke risk regardless of race.^{iv}

“Thanks to the contributions of study participants, a lot has been learned,” said George Howard, DrPH, University of Alabama at Birmingham professor of biostatistics and study lead. “Because of them, I honestly think the burden of stroke can be reduced for everyone, but particularly for African-Americans and Southerners. If we do this, the implications will be staggering.” The REGARDS study is funded by the National Institutes of Health’s National Institute of Neurological Disorders and Stroke (NINDS).

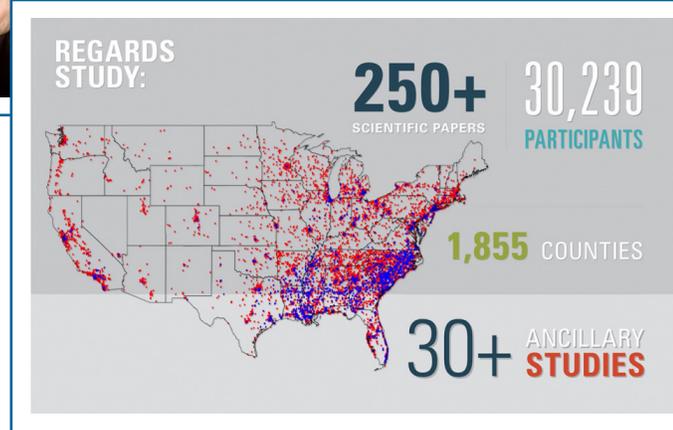
ⁱ According to the most recent statistics available from the Centers for Medicare and Medicaid Services

ⁱⁱ [Diabetes and Obesity: “The State of Obesity: Better Policies for a Healthier America 2018”](#)
[Cardiovascular Disease: Kaiser J Family Foundation State Health Facts](#)
[Cancer Deaths: National Cancer Institute State Cancer Profiles](#)
[Alzheimer’s Disease Deaths: Alzheimer’s Association “2018 Alzheimer’s Disease Facts and Figures”](#)

ⁱⁱⁱ <https://www.uab.edu/news/research/item/3405-study-finds-people-raised-in-the-stroke-belt-are-at-increased-risk>

^{iv} <https://www.sciencedaily.com/releases/2016/10/161019173106.htm>

^v <https://www.uab.edu/news/research/item/9160-regards-study-receives-20-4-million-grant>



RESEARCH-SUPPORTED JOBS IN ALABAMA

Thermo Fisher Scientific operates a 140-person facility in Auburn where, as part of the company’s scientific laboratory products business, it performs kitting and makes testing kits and other products used by NIH-funded researchers in Alabama and across the country.



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ARKANSAS

Medical researchers funded by the National Institutes of Health (NIH) are working every day to improve health, discover cures and provide hope to people the world-over affected by disease. This work, however, has a secondary benefit: it supports employment and economic activity across the United States, including in Arkansas.



ADDING TO ARKANSAS'S ECONOMY

In FY2017, 12 institutions in Arkansas received



99 research awards



totaling more than \$57 million

While the bulk of the research awards went to the University of Arkansas for Medical Sciences, many others supported a range of institutions and businesses around the state. This research funding, when cycled through the economy, generated **\$121 million in total sales** for Arkansas businesses:



Supporting **more than 870 jobs** in Arkansas; and



Generating approximately **\$12 million in tax and fee revenues** for state, county and municipal governments statewide.

BOOSTING THE LABOR FORCE IN ARKANSAS

Jobs in the scientific R&D sector in Arkansas pay on average 1.7 times more than those in other sectors. In 2017, this was \$60,641 vs. \$35,800. And, for young workers (under 25), the difference was also significant — 1.5 times the average pay in other fields, \$19,800 vs. \$13,100 — a factor important to the state's future growth.



REDUCING PUBLIC HEALTH COSTS

In Arkansas, **47% of the population** is enrolled in Medicare and Medicaidⁱ, far exceeding the national average of 35%, and spending on these programs amounts to **9% of Arkansas's total GDP**, also above the national average of 6%. The prevalence of chronic disease in Arkansas is much higher than in other states.ⁱⁱ

COMPARED TO OTHER STATES, ARKANSAS RANKS:

4th for rate of **cardiovascular disease**

4th for rate of deaths from **Alzheimer's disease**

6th for rate of deaths from **cancer**

7th for rate of **obesity**

9th for rate of **diabetes**





MEDICAL RESEARCH AT WORK IN ARKANSAS

Sunni, an Arkansas resident, was born with a heart defect known as Tetralogy of Fallot. This condition, affecting about 1,660 babies each year in the United States, is a complex condition involving four different heart problems, including a hole in the wall between the heart's main pumping chambers. Those born with Tetralogy of Fallot require surgery to repair their heart when they are very young and often endure additional complications and medical procedures throughout their life.

In Sunni's case, she had her first surgery at four months to repair the hole in her heart, followed by ablation, or scarring of her heart tissue, to treat dangerous heart arrhythmias at age 11 and another open-heart surgery at age 12 to replace her right pulmonary valve with a pig valve. Unfortunately, replacement valves don't last a lifetime and by 2014, at the age of 28, Sunni's implanted valve was only functioning at 20 percent.

This time, however, replacement of her pulmonary valve did not require open heart surgery. In the intervening 16 years, medical research and technological innovation had produced an alternative, less invasive method — the Melody Transcatheter Pulmonary Valve. It consists of a specially designed heart valve inserted into a catheter that is guided intravenously to the heart. For Sunni, this was a prayer answered. "I knew I didn't want to have open heart surgery again and always prayed that technology would advance somehow so that my valve could be replaced another way."

Today, four years later, Sunni is still feeling great and able to do things she hadn't done in years. She has even had a child — something she thought she'd never be able to do because of her heart condition.

“

I knew I didn't want to have open heart surgery again and always prayed that technology would advance somehow so that my valve could be replaced another way.”



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¹ According to the most recent statistics available from the Centers for Medicare and Medicaid Services

² [Diabetes and Obesity: "The State of Obesity: Better Policies for a Healthier America 2018"](#)

[Cardiovascular Disease: Kaiser J Family Foundation State Health Facts](#)

[Cancer Deaths: National Cancer Institute State Cancer Profiles](#)

[Alzheimer's Disease Deaths: Alzheimer's Association "2018 Alzheimer's Disease Facts and Figures"](#)

KENTUCKY

Medical researchers funded by the National Institutes of Health (NIH) are working every day to improve health, discover cures and provide hope to people the world-over affected by disease. This work, however, has a secondary benefit: it supports employment and economic activity across the United States, including in Kentucky.



ADDING TO KENTUCKY'S ECONOMY

In FY2017, 24 institutions in Kentucky received



436 research awards



totaling more than \$188 million

While the bulk of the research awards went to the University of Kentucky and University of Louisville, many others supported a range of institutions and businesses across the state. This research funding, when cycled through the economy, generated nearly **\$440 million in total sales** for Kentucky businesses:



Supporting **more than 2,900 jobs** in Kentucky; and



Generating approximately **\$38 million in tax and fee revenues** for state, county and municipal governments statewide.

BOOSTING THE LABOR FORCE IN KENTUCKY

Jobs in the scientific R&D sector in Kentucky pay on average 2.3 times more than those in other sectors. In 2017, this was \$84,500 vs. \$37,500. for young workers (under 25), the difference was also significant — nearly 2 times the average pay in other fields, \$25,400 vs. \$13,000. This wage difference, coupled with 19% job growth for young workers in the scientific R&D sector since 2014 (compared to just 8% across all sectors), helps position Kentucky for future growth.



REDUCING PUBLIC HEALTH COSTS

In Kentucky, **43% of the population** is enrolled in Medicare and Medicaid, far exceeding the national average of 35%, and spending on these programs amounts to **9% of Kentucky's total GDP**, also above the national average of 6%. Contributing to this burden is the prevalence of chronic disease in Kentucky, which is much higher than in other states.ⁱⁱ

COMPARED TO OTHER STATES, KENTUCKY RANKS:

1st for rate of deaths from **cancer**

3rd for rate of **cardiovascular disease**

5th for rate of **diabetes**

8th for rate of **obesity**

10th for rate of deaths from **opioid overdose**

19th for rate of deaths from **Alzheimer's disease**



MEDICAL RESEARCH AT WORK IN KENTUCKY

Aging Research

Kentucky has been at the forefront of research on Alzheimer's disease and healthy brain aging for nearly 40 years. The University of Kentucky's (UK) Sanders-Brown Center on Aging (SBCoA) was founded in 1979 and was one of 10 original Alzheimer's Disease Centers funded by the NIH. The center has seen significant growth in NIH funding: SBCoA received \$5.7 million in NIH awards in FY14 and \$10.4 million in FY18. The center serves as a focal point for all Alzheimer's disease-related activity at UK and in Kentucky, and feeds into national and international efforts to understand and treat this debilitating condition.

The overall goal of SBCoA is to generate and disseminate new knowledge about the aging process and age-related brain diseases through cutting-edge research, clinical programs, education and outreach. It has particularly distinguished itself in two areas: its autopsy program, which provides important information and research material; and its unique, continuously replenished study group of about 500 cognitively intact subjects. This group, along with another group transitioning from normal health to mild cognitive impairment or Alzheimer's disease, are followed over time and have committed to brain donation upon death.

"There is real hope on the horizon in our fight against age-related brain disorders. But we can't stop now," says Linda Van Eldik, SBCoA director. "Continued work to understand the development of this disease, as well as to translate discoveries into beneficial interventions, is urgently needed. We are hopeful that additional funding to the NIH for Alzheimer's research will allow investigators in Kentucky to expand the breadth of our approach."

Investing in Health Disparities Research

In September 2018, the University of Kentucky opened a research facility expressly devoted to addressing and eradicating the state's most significant health disparities. This 300,000-square-foot, \$265 million facility was paid for through a combination of state funds and private philanthropy. This facility will enable multidisciplinary research teams in basic biomedical research, health services, public health, behavioral sciences, bioinformatics and big data, economics and engineering. Ultimately, some 500 scientists, principal investigators, graduate and undergraduate students will work in the unique facility, which brings together experts across disciplines around the idea of more quickly developing solutions and getting them into communities where they can make a difference. Much of their research will be funded by the NIH.

¹ According to the most recent statistics available from the Centers for Medicare and Medicaid Services

² Diabetes and Obesity: "The State of Obesity: Better Policies for a Healthier America 2018"

Cardiovascular Disease: Kaiser J Family Foundation State Health Facts

Cancer Deaths: National Cancer Institute State Cancer Profiles

Alzheimer's Disease Deaths: Alzheimer's Association "2018 Alzheimer's Disease Facts and Figures"

Opioid Overdose Deaths: Kaiser J Family Foundation State Health Facts



Images: University of Kentucky



NEW STATE-OF-THE-ART RESEARCH FACILITY



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MAINE

Medical researchers funded by the National Institutes of Health (NIH) are working every day to improve health, discover cures and provide hope to people the world-over affected by disease. This work, however, has a secondary benefit: it supports employment and economic activity across the United States, including in Maine.



ADDING TO MAINE'S ECONOMY

In FY2017, nine institutions in Maine received

129 research awards
totaling nearly \$90 million

While the bulk of the research awards went to Jackson Laboratory and the Maine Medical Center, many others supported a range of institutions and businesses in the state. This research funding, when cycled through the economy, generated **more than \$200 million in total sales** for Maine businesses:

- Supporting nearly **1,500 jobs** in Maine; and
- Generating approximately **\$24 million in tax and fee revenues** for state, county and municipal governments statewide.

BOOSTING THE LABOR FORCE IN MAINE

Jobs in the scientific R&D sector in Maine on average pay nearly 1.5 times more than those in other sectors. In 2017, this was \$57,200 vs. \$38,500. For young workers (under 25), the difference was even larger — 1.8 times the average pay in other fields, \$24,000 vs. \$13,000. Additionally, Maine has experienced somewhat higher job growth for young workers in the scientific R&D sector since 2014 compared to other sectors (5% vs. 4%). The ability to attract and retain young workers is important to Maine's future growth given its status as the "oldest" state in the nation.



REDUCING PUBLIC HEALTH COSTS

In Maine, **46% of the population** is enrolled in Medicare and Medicaidⁱ, far exceeding the national average of 35%, and spending on these programs amounts to **9% of Maine's total GDP**, also above the national average of 6%. Contributing to this burden is the prevalence of chronic disease in Maine, which is much higher than in other states.ⁱⁱ

COMPARED TO OTHER STATES, MAINE RANKS:

8th for rate of deaths from **opioid overdose**

9th for rate of **cardiovascular disease**

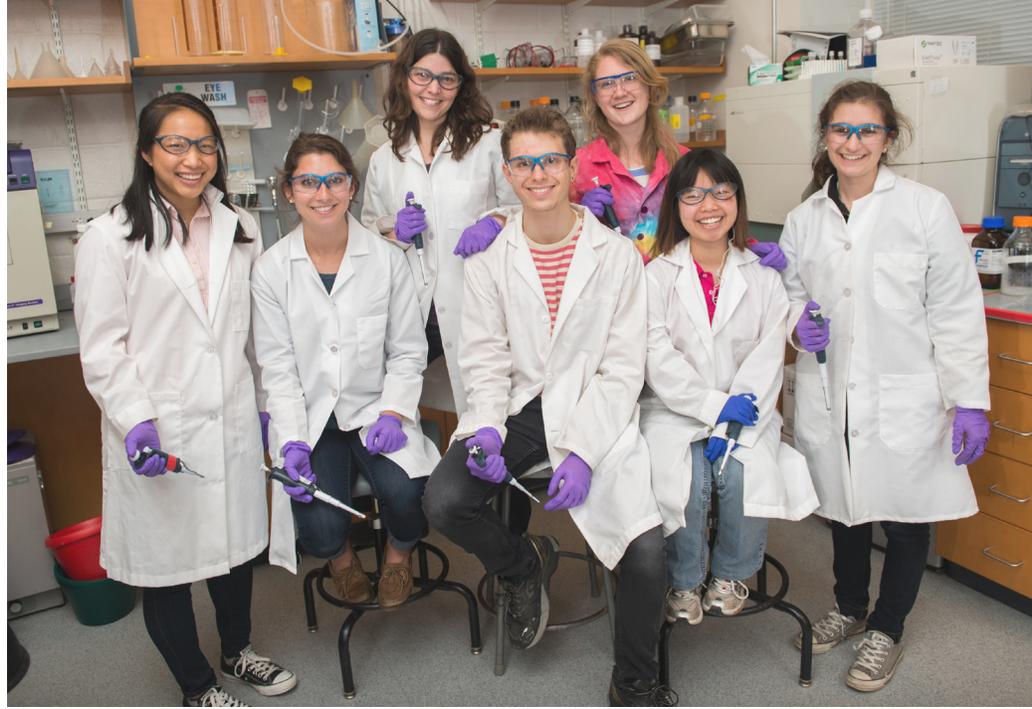
15th for rate of deaths from **Alzheimer's disease**

16th for rate of deaths from **cancer**



MEMBERS OF THE DUBE LAB

Photo credit: Michele Stapleton Photography



MEDICAL RESEARCH AT WORK IN MAINE

At Bowdoin College in Brunswick, Maine, Dr. Danielle Dube is studying the composition of sugars on the surface of disease producing bacteria. Specifically, she wants to understand how the sugar molecules stack together and enable bacterium to adhere to stomach cells. If she can figure this out, she can identify ways to interfere with this process and develop new antibiotics. Dr. Dube's target is the harmful *Helicobacter pylori* bacterial pathogen, a leading cause of stomach ulcers, gastritis and gastric cancer, and a bacterium that is increasingly resistant to existing antibiotic treatments.

In addition to providing clues to the development of new antibiotics, understanding how the sugars work might prove even more significant. Since they are unique to bad bacteria and entirely absent from human cells, Dr. Dube hopes the sugars may lead to the development of targeted antibiotics that work selectively against *H. pylori* and leave the many beneficial bacteria in the stomach alone (antibiotics today are not selective, they wipe out all bacteria — good and bad). This would be a significant medical advance and a potentially huge step in the battle against antibiotic resistance.

Dr. Dube's research has been supported directly and indirectly by the National Institutes of Health since 2010. She says this funding has been "transformative" both to her — supporting her work — and her students. With NIH funding she has been able to support 23 undergraduate research opportunities over the years, helping to launch these young researchers on to the next stage of their careers. The funding additionally supports a full-time technician for her lab.

¹ According to the most recent statistics available from the Centers for Medicare and Medicaid Services

² [Cardiovascular Disease: Kaiser J Family Foundation State Health Facts](#)

[Cancer Deaths: National Cancer Institute State Cancer Profiles](#)

[Alzheimer's Disease Deaths: Alzheimer's Association "2018 Alzheimer's Disease Facts and Figures"](#)

[Opioid Overdose Deaths: Kaiser J Family Foundation State Health Facts](#)

“

NIH funding has been transformative and helped support a vibrant, active undergraduate research lab where students have a meaningful research experience that launches them toward their own careers.”



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MISSISSIPPI

Medical researchers funded by the National Institutes of Health (NIH) are working every day to improve health, discover cures and provide hope to people the world-over affected by disease. This work, however, has a secondary benefit: it supports employment and economic activity across the United States, including in Mississippi.



ADDING TO MISSISSIPPI'S ECONOMY

In FY2017, seven institutions in Mississippi received



89 research awards



totaling more than \$53 million

While the bulk of the research awards went to the University of Mississippi Medical Center, others supported a range of institutions and businesses throughout the state. This research funding, when cycled through the economy, generated **\$113 million in total sales** for Mississippi businesses:



Supporting **more than 800 jobs** in Mississippi; and



Generating approximately **\$12 million in tax and fee revenues** for state, county and municipal governments statewide.

BOOSTING THE LABOR FORCE IN MISSISSIPPI

Jobs in the scientific R&D sector in Mississippi pay on average 1.6 times more than those in other sectors. In 2017, this was \$52,200 vs. \$31,700. And for young workers (under 25), the difference was also significant — 1.2 times the average pay in other fields, \$14,200 vs. \$11,500 — a factor important to the state's future growth.



REDUCING PUBLIC HEALTH COSTS

In Mississippi, **41% of the population** is enrolled in Medicare and Medicaidⁱ, far exceeding the national average of 35%, and spending on these programs amounts to **10% of Mississippi's total GDP**, also well above the national average. Contributing to this burden is the prevalence of chronic disease in Mississippi, which is much higher than in other states.ⁱⁱ

COMPARED TO OTHER STATES, MISSISSIPPI RANKS:

2nd for rate of **diabetes**

2nd for rate of **obesity**

3rd for rate of deaths from **cancer**

5th for rate of **cardiovascular disease**

9th for rate of deaths from **Alzheimer's disease**



DR. ADOLFO CORREA, JACKSON HEART STUDY DIRECTOR AND PRINCIPAL INVESTIGATOR, UNIVERSITY OF MISSISSIPPI MEDICAL CENTER COORDINATING CENTER AND FIELD CENTER



Image: University of Mississippi Medical Center

MEDICAL RESEARCH AT WORK IN MISSISSIPPI

Mississippi is home to the Jackson Heart Study (JHS), the nation's largest long-term cohort study of cardiovascular health among African Americans. Supported by the National Institutes of Health (NIH), the study recruited 5,300 African Americans living in the greater Jackson metropolitan area. The study has three main purposes: to investigate biological, genetic and environmental risk factors to better understand why African Americans are disproportionately affected by cardiovascular diseases; to promote healthy lifestyles and lower the risk of cardiovascular and related diseases in the local community and across the state of Mississippi; and to prepare and encourage underrepresented minority students to pursue biomedical careers.

Heart disease is the leading cause of death in the United States. However, among African Americans, about 44 percent of men and 49 percent of women have some form of heart disease compared to 37 percent and 32 percent for white men and women. Mississippi has the nation's highest heart disease mortality rates for both black and white residents.

Now in its 20th year, the JHS is providing data to help researchers and clinicians better understand, prevent, and treat heart disease in Mississippi and nationwide. Discoveries made by JHS researchers include a gene variant in African-Americans that doubles the risk of heart disease; the finding that even small spikes in blood pressure can lead to a higher risk of death; and a sickle cell trait linked to a higher risk of kidney disease. Researchers are conducting whole-genome sequencing of some 3,500 participants to identify new genetic risk factors for cardiovascular disease and new targets for therapy. Going forward, the study also will investigate the link between cardiovascular health and brain health.

JHS is built on a unique collaborative partnership that includes the University of Mississippi Medical Center, Tougaloo College, Jackson State University, Mississippi State Department of Health, community leaders in the Jackson area and the NIH.



JACKSON HEART STUDY PRINCIPAL INVESTIGATORS AND COMMUNITY MEMBERS

Image: Jackson State University



JACKSON HEART STUDY — CELEBRATING HEALTHY LIFESTYLES

Image: Jackson State University



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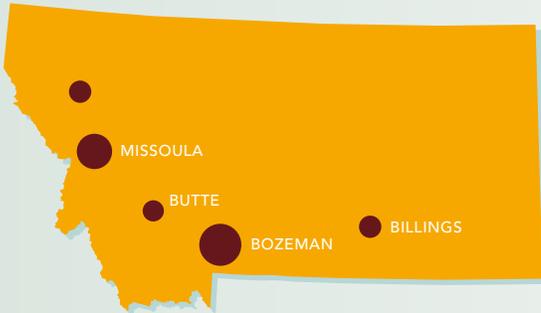
[Cardiovascular Disease: Kaiser J Family Foundation State Health Facts](#)

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[Alzheimer's Disease Deaths: Alzheimer's Association "2018 Alzheimer's Disease Facts and Figures"](#)

MONTANA

Medical researchers funded by the National Institutes of Health (NIH) are working every day to improve health, discover cures and provide hope to people the world-over affected by disease. This work, however, has a secondary benefit: it supports employment and economic activity across the United States, including in Montana.



ADDING TO MONTANA'S ECONOMY

In FY2017, 14 institutions in Montana received

69 research awards
totaling nearly \$36 million

While the bulk of the research awards went to Montana State University in Bozeman and University of Montana in Missoula, others supported a range of institutions and businesses throughout the state. This research funding, when cycled through the economy, generated **\$76 million in total sales** for Montana businesses:



Supporting nearly **600 jobs** in Montana; and



Generating approximately **\$7 million in tax and fee revenues** for state, county and municipal governments statewide.

BOOSTING THE LABOR FORCE IN MONTANA

Jobs in the scientific R&D sector in Montana pay on average 2.2 times more than those in other sectors. In 2017, this was \$75,600 vs. \$34,000. And, for young workers (under 25), the difference was also significant — 2.1 times the average pay in other fields, \$26,400 vs. \$12,700. With one of the nation's oldest populations, attracting and keeping young workers is important for Montana's future growth.



REDUCING PUBLIC HEALTH COSTS

In Montana, **30% of the population** (less than the national average of 35%) is enrolled in Medicare and Medicaidⁱ and spending on these programs amounts to **6% of Montana's total GDP** (the national average). Residents in Montana tend to be healthier on average than those in other states as measured by the rate of certain chronic diseases and health conditions.ⁱⁱ

COMPARED TO OTHER STATES, MONTANA RANKS:

34th for rate of deaths from **cancer**

34th for rate of **cardiovascular disease**

42nd for rate of deaths from **Alzheimer's disease**

46th for rate of **diabetes**

46th for rate of **obesity**

50th for rate of deaths from **opioid overdose**



This state snapshot accompanies the UMR report, "The Economic & Fiscal Impact on Select States of NIH-funded Medical Research."

NIH-funded research that leads to improved treatments and cures for disease can help Montana address the state and local fiscal challenges of rising health care costs.



MEDICAL RESEARCH AT WORK IN MONTANA

Linda firmly believes that as long as there is life, there is hope. This philosophy has served her well since today she is a 14-year cancer survivor. Billings, MT resident Linda Wetzel credits medical research — and her participation in a clinical trial — with saving her life.

In late 2004, she was diagnosed with Stage IV B-cell non-hodgkins lymphoma throughout her entire body. An aggressive mass had spread across her abdomen, compromised her left kidney and had metastasized to her bone marrow. She was, in her own words, “more dead than alive.” With her cancer so advanced, she volunteered for an aggressive experimental treatment. The treatment was grueling, but after six months, her cancer was in remission. Unfortunately, nine months later the cancer returned. That’s when her doctor approached her about participating in a clinical trial that was using patients’ own stem cells to treat their disease. Convincing Linda to participate was the easy part.

The trial involved even more aggressive chemotherapy, plus blood transfusions and the harvesting of stem cells from Linda’s body, and eventually, the return of those stem cells to her body. While the procedure was ultimately life-saving, it was a harrowing two months. During this time her family twice began funeral preparations, but through research and with the help of many doctors and nurses, she made it through and her cancer has been in remission since June 28, 2006.

Today, Linda is the very proud mom of four of her own sons and two foster sons. She has watched both a son and a foster son return home from serving in Iraq and Afghanistan. One of whom is participating in a clinical study of concussive brain injury — his decision to participate was easy given his mom’s experience.

*Linda credits
medical research
— and her
participation in
a clinical trial —
with saving
her life.*



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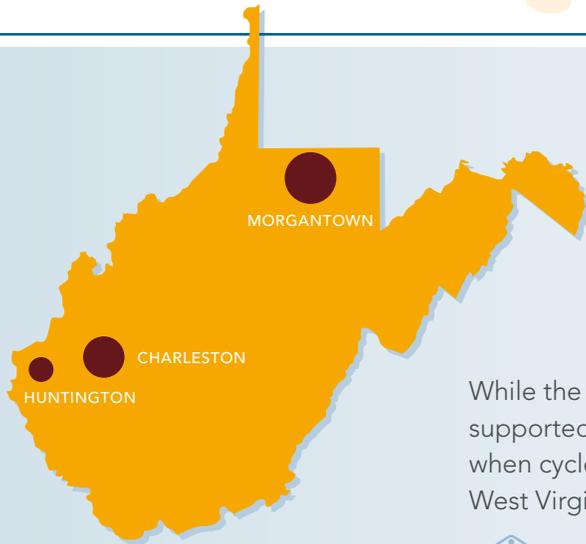
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[Opioid Overdose Deaths: Kaiser J Family Foundation State Health Facts](#)

WEST VIRGINIA

Medical researchers funded by the National Institutes of Health (NIH) are working every day to improve health, discover cures and provide hope to people the world-over affected by disease. This work, however, has a secondary benefit: it supports employment and economic activity across the United States, including in West Virginia.



ADDING TO WEST VIRGINIA'S ECONOMY

In FY2017, five institutions in West Virginia received



58 research awards



totaling more than \$28 million

While the bulk of the research awards went to West Virginia University, others supported institutions and businesses across the state. This research funding, when cycled through the economy, generated **\$58 million in total sales** for West Virginia businesses:



Supporting nearly **400 jobs** in West Virginia; and



Generating approximately **\$6 million in tax and fee revenues** for state, county and municipal governments statewide.

BOOSTING THE LABOR FORCE IN WEST VIRGINIA

Jobs in the scientific R&D sector in West Virginia pay on average 1.3 times more than those in other sectors. In 2017, this was \$45,700 vs. \$36,100. And for young workers (under 25), the difference was also significant — 5 percent higher than the average pay in other fields, \$14,200 vs. \$13,600 — a factor important to the state's future growth.



REDUCING PUBLIC HEALTH COSTS

In West Virginia, **49% of the population** is enrolled in Medicare and Medicaidⁱ, far exceeding the national average of 35%, and spending on these programs amounts to **10% of West Virginia's total GDP**, also well above the national average of 6%. Contributing to this burden is the prevalence of chronic disease in West Virginia, which is much higher than in other states.ⁱⁱ

COMPARED TO OTHER STATES, WEST VIRGINIA RANKS:

1st for rate of **diabetes**

1st for rate of **cardiovascular disease**

1st for rate of **obesity**

1st for rate of deaths from **opioid overdose**

2nd for rate of deaths from **cancer**

16th for rate of deaths from **Alzheimer's disease**



This state snapshot accompanies the UMR report, "The Economic & Fiscal Impact on Select States of NIH-funded Medical Research."

NIH-funded research that leads to improved treatments and cures for disease can help West Virginia address the state and local fiscal challenges of rising health care costs.



MEDICAL RESEARCH AT WORK IN WEST VIRGINIA

In January 2018, West Virginia resident George Blough received a designation she once thought unimaginable: She is the longest living survivor of ovarian cancer that her doctor has ever treated. It had been 28 years since her cancer was first diagnosed, and 21 years since it metastasized to her right lung.

Fortunately for George, in the seven years between her original diagnosis in 1990 and the cancer's recurrence in 1997, a new drug was approved for the treatment of ovarian cancer. George underwent six rounds of chemotherapy with this drug and explains quite matter-of-factly, "Medical research saved my life. If it wasn't for Taxol, I wouldn't be here today."

According to the National Cancer Institute (NCI), Taxol is the best-selling cancer drug ever manufactured. A tremendous success story, its 30-year journey from basic medical research to an approved cancer treatment is testament to the diligence and hard work by numerous academic researchers, the pharmaceutical industry and the NCI working together toward a common cause. In 2017, at an event in Washington, D.C., George and one of these researchers realized their very personal connection. Peggy Rutherford had worked at The Ohio State University in the 1980s conducting tests of "hopeful" chemotherapeutic agents, one of which was Taxol. "Wow! We were in DC to ask for more funding for research and I was standing next to someone who had benefitted from my research. What an empowering moment for both of us," Peggy said.

Today, at 72, George has a wonderful husband, four grown children and six grandchildren. Reflecting on her situation, she says there were times she didn't think she'd live to be 45. "Twenty-eight years ago, hysterectomy was all there was." Now, she tries to give hope to others who have been diagnosed with cancer by reminding them that there are researchers out there working on their behalf. "We have hope because we have research," she says.

¹ According to the most recent statistics available from the Centers for Medicare and Medicaid Services

² [Diabetes and Obesity: "The State of Obesity: Better Policies for a Healthier America 2018"](#)

[Cardiovascular Disease: Kaiser J Family Foundation State Health Facts](#)

[Cancer Deaths: National Cancer Institute State Cancer Profiles](#)

[Alzheimer's Disease Deaths: Alzheimer's Association "2018 Alzheimer's Disease Facts and Figures"](#)

[Opioid Overdose Deaths: Kaiser J Family Foundation State Health Facts](#)

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United for Medical Research is a coalition of leading scientific research institutions and industries, and patient and health advocates that have joined together to seek steady increases in funding for the National Institutes of Health. Learn more at www.unitedformedicalresearch.com. For examples of the amazing things that NIH research is making possible, visit www.amazingthingspodcast.com.