

Fighting cancer on many fronts

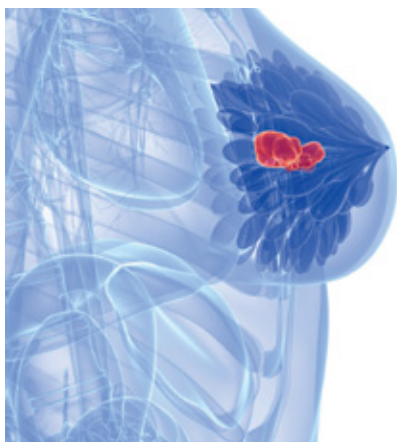
Expanding clinical trials to find more effective cancer treatment drugs

The development and testing of new drugs to treat adult and pediatric cancers is a pressing national and global need. In conjunction with the Fred Hutchinson Cancer Research Center and the University of Washington, LSDF has invested in a Phase 1 clinical trials program to evaluate new cancer drugs. More than 100 patients to date have been enrolled in these studies, three of which are sponsored by Washington state companies. As an added benefit, LSDF support has leveraged more than \$1 million in industry contracts for the program.



LSDF invests in making cancer more susceptible to treatment

Monoclonal antibodies are used for the treatment of some cancers. Unfortunately, tumors can develop resistance to these therapies. LSDF has invested in a University of Washington project to test a method to enhance the sensitivity of cancer cells to monoclonal antibodies with no apparent toxic side effects. A Washington-based emerging biotechnology company, Compliment Corporation, has expressed interest in commercial development of this promising treatment.



Detecting breast cancer recurrence earlier will save lives

Breast cancer is the most common cancer and the second-leading cause of cancer death among women in Washington state. LSDF has invested in a project at the University of Washington to develop and test a "biochip" that identifies and measures tumor cells circulating in the blood. This early identification of breast cancer cells through "biomarker" technology eventually will help doctors identify recurrences much sooner after cancer treatment, which means faster follow-up therapy and better outcomes.

About the Life Sciences Discovery Fund

In May 2005, Governor Gregoire and the Legislature created the Life Sciences Discovery Fund (LSDF) to support innovative research in Washington state to promote life sciences competitiveness, enhance economic vitality, and improve health and healthcare. Funded by Tobacco Settlement money, LSDF has lived up to its mission and is already showing remarkable results, including a 9:1 return on investment to Washington state.

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Investing in our children, investing in our future

Brain imaging may uncover the mystery of learning

Children's brain responses to events such as thinking, listening to language and music, and social interactions have been linked to their subsequent development and learning capacity. Funded by LSDF, a University of Washington team has developed a regional MEG brain imaging center — the only one of its kind in the world designed for infants and children — to help investigators study how young minds learn and the causes of, and possible treatments for, autism, dyslexia, and learning difficulties.



Genetic screening helps discover type 1 (juvenile) diabetes

In conjunction with the Pacific Northwest Diabetes Research Institute, the U.S. Centers for Disease Control, and the Washington State Department of Health, LSDF has invested in new technology using inexpensive genetic screening to predict the likelihood of juvenile diabetes in newborns. Early detection and treatment can help patients live healthier lives and reduce health-care costs associated with this chronic childhood disease. Such research could also help lead to prevention therapies to benefit the four million children born in the U.S. each year.



Helping kids with celiac disease lead more normal lives

Celiac disease is one of the most common genetic conditions in the world, affecting roughly one in 133 people. Symptoms can be quite painful and severe, but can be quelled by a gluten-free diet. LSDF has invested in a Washington State University project to develop a gluten-free strain of wheat to bring relief to millions of people and to establish an economically valuable crop for Washington state farmers.

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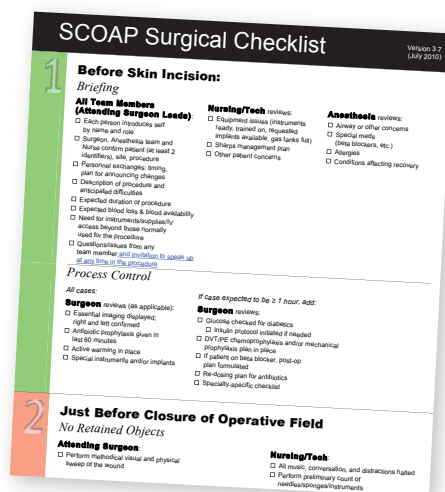
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Saving lives, saving dollars

LSDF's \$1.3 million investment saves more than \$50 million in surgical costs

LSDF's investment through the University of Washington and the Foundation for Healthcare Quality to help develop the Surgical Care and Outcomes Assessment Program (SCOAP) has reduced health-care costs in Washington state by more than \$50 million. By using performance data, interventions, and safety checklists, more than 55 hospitals in the state have cut costs and improved outcomes by reducing unnecessary surgeries and surgical complications.



Early cavity detection can save millions of dollars

Tooth cavities cannot yet be detected before drilling is required, which results in an estimated lifetime cost of \$2,000 per cavity after the initial filling. Through the University of Washington, LSDF is investing in an effort to develop a low-cost imaging system to detect early tooth decay, thus allowing intervention with minimally invasive medicinal therapeutics before dental fillings or tooth extraction is required. Early detection and intervention are expected to reduce dental-care costs and improve overall oral health.



Each dollar spent on evidence-based addiction and mental health treatment returns over three dollars

Substance abuse and mental illness are major problems in Washington. It has been estimated that evidence-based treatments developed in urban settings could save more than \$1 billion statewide but these treatments need adaptation and development to work in rural environments. Through Washington State University, LSDF is investing in a program to test and implement appropriate treatments in rural communities. Given the societal costs of drug addiction, there are huge opportunities: every dollar spent to reduce the problem can return almost four dollars in cost savings to the state.

LSDF is investing in new technologies that will help save lives

- More than 1,000 people enrolled in type 1 (juvenile) diabetes prevention and treatment studies
- More than 100 cancer patients enrolled in clinical trials of new therapies
- More than 5,000 families now know that their child is at increased risk of juvenile diabetes

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Changing the future of long-term care

By 2040, an estimated 23 percent of the U.S. population will be older than 65. If 10 percent of this population can remain at home just two years longer, Washington state will save an estimated \$341 million per year in long-term care costs.

“Smart home” technology can help people avoid institutional care

An LSDF investment in a Washington State University-led effort to monitor routine daily tasks and provide alerts and reminders as needed will help people stay at home longer.



Helping stroke survivors live life to the fullest

LSDF-funded research at Swedish Neuroscience Institute has allowed stroke survivors to return home and resume their normal activities more quickly than was possible previously. New ultrasound treatments and drugs being developed by a Bothell company have the potential to improve outcomes and save lives here and around the world.



Reducing bone fracture healing time in the elderly

An aging population means more bone fractures, of which 5 to 10 percent require surgical intervention. LSDF has invested in research at Battelle-Pacific Northwest Division and Washington State University to study bone healing stimulators that can be implanted through “hydrogels” to help fractures heal more quickly and without more costly procedures. If successful, the investigators will continue development and pursue commercial licensing of the implants for both human and veterinary clinical use.

Speeding recovery from brain impairment

Recovery from brain damage due to a stroke, brain injury, or epilepsy is a struggle for thousands of patients in Washington state and millions of people throughout the world. Activity-dependent electrical stimulation of the brain, which promotes long-term changes in nerve activity, could be a new treatment for advancing recovery in individuals suffering from brain impairment. LSDF-funded research at the University of Washington could have a wide-ranging impact for Washingtonians with neurological disorders and those recovering from, or managing, chronic brain-deterioration disease.

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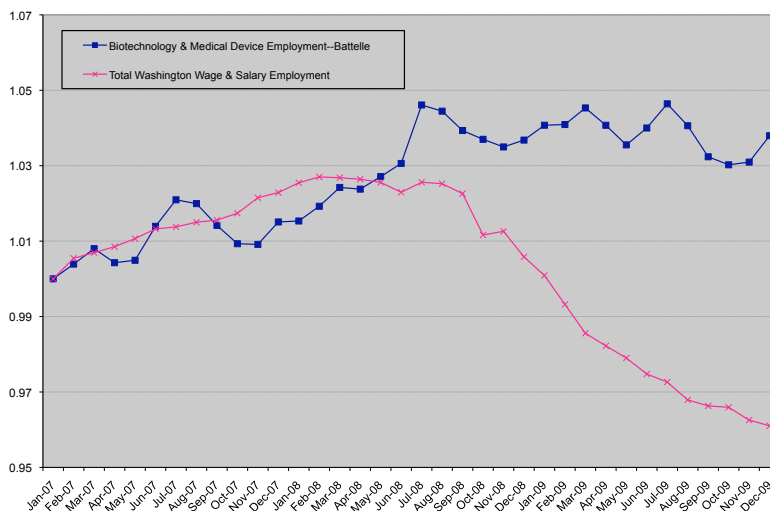
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Creating jobs, spurring the economy

The life sciences sector is a growing and vital part of Washington state's economic engine:

- 77,000 direct and indirect jobs
- Life sciences employment is up five percent while the state's job development is down (see graph)



The Life Sciences Discovery Fund is spurring that growth, even though most of its awards are still in their early stages and only one-quarter of award funds have been distributed:

- More than 1,200 direct and indirect jobs anticipated over the next three years
- At least \$260 million in statewide economic activity
- Almost \$100 million in additional dollars committed or received in "follow on" funding
- More than \$50 million in health-care cost savings
- Collaborations with 30 Washington state companies to support product development and jobs

The Life Sciences Discovery Fund is generating a 9:1 return on investment to Washington state, driven in part by:

- Launching new research that creates jobs and attracts funding and talent
- Bringing new ideas into the clinic to improve health and reduce costs
- Moving promising research toward commercial development

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