

VISIT
UNEMED CORPORATION
AT THE SPACIOUS & MAJESTIC
CATALYST BUILDING IN THE EDGE DISTRICT

EXPLORE

- ~ **BREAKTHROUGH TECHNOLOGIES**
- ~ **NEW INNOVATIONS & DISCOVERIES**
- ~ **SUCCESS STORIES**
- ~ **CORE METRICS**

UNEMED

ANNUAL
TECH TRANSFER
FOR NEBRASKA



REPORT
FISCAL YEAR
2025



2025 Annual Report

UNeMed is the technology transfer & commercialization office for the University of Nebraska Medical Center and the University of Nebraska at Omaha. We work with all faculty, staff and students to advance their innovations and discoveries to the marketplace for a better world.

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Message from the president & CEO

Despite the many headwinds facing biomedical research and commercialization, the past year has been one of remarkable progress for UNeMed as we continue to build the infrastructure and networks that will support sustained growth and enable more discoveries to reach the marketplace in the years ahead.

In 2025, UNeMed achieved new milestones in invention disclosures, patents, and licensing activity—reflecting both the resilience of our research enterprise and the creativity of our inventors. Several technologies advanced toward real-world use, including promising new medical devices, therapeutics, and digital health solutions.

These achievements are the result of strong collaboration among faculty innovators, startup founders, investors, and partners across the university and the broader Nebraska ecosystem. Together, we are building momentum and positioning Nebraska as a growing hub for biomedical and health technology innovation.

As we look ahead, UNeMed will continue to champion innovation with purpose—empowering ideas that improve lives and strengthen our community.



**HONORING
UNIVERSITY OF NEBRASKA INNOVATORS
FOR THEIR INVENTIONS, PATENTS, LICENSES,
DISCOVERIES & STARTUPS**

**INNOVATION
AWARDS**

Record crowd attends 2024 Innovation Awards

An estimated 225 turned out to network with colleagues, university leadership and UNeMed staff at the 2024 Innovation Awards—UNeMed’s annual event honoring all UNMC and UNO inventors who submitted new inventions, licensed a technology or were issued a U.S. patent during the previous fiscal year.

In addition, special awards were presented for the “Startup of the Year,” “Faculty Entrepreneur,” “Innovation Champion,” “Most Promising New Invention,” and the “Innovator of the Year.”

Held on Nov. 7, 2024, it was the first-ever event hosted in the new Catalyst building, which did not officially open until January.

Patent awardees were presented commemorative plaques, licensees were presented glass trophies, and, for the first time, new invention submitters were rewarded with unique T-shirts and pennants. The T-shirts and pennants are only presented to inventors who submit new inventions. Inventors were also awarded lapel pins that can be affixed to their pennants to denote the number of inventions they have disclosed.

Innovator of the Year honors went to Jingwei Xie, PhD, professor

[more ...](#)





in the Department of Surgery. Other special award winners were Breanna Hetland, PhD, RN, as the Faculty Entrepreneur; the Maverick Technology Venture Alliance as the Innovation Champion; Carecubes, Inc., as the Startup of the Year; and the Ruggedized Beam Helmet as the Most Promising New Invention.

Dr. Xie, the 2024 Innovator of the Year, has developed an extensive portfolio of nanofiber-related technologies that have commercial potential in a wide variety of products including bandages that can better stop bleeding and promote wound-healing, scaffolds that can stimulate tissue regeneration, and as drug delivery devices.

In the last decade, Dr. Xie had submitted more than 36 new inventions, resulting in eight U.S. patents, six licensing agreements and a pair of sponsored research projects. He was previously awarded the 2017 Most Promising New Invention, was a 2015 UNMC New Investigator awardee, a 2020 UNMC Distinguished Scientist and the recipient of UNMC's Scientific Achievement Award in 2019.

Dr. Hetland, an assistant professor in the College of Nursing, was named the first-ever Faculty Entrepreneur award winner for her tireless efforts in building a new startup, FamilyRoom.

[more ...](#)

The Most Promising New Invention—The Ruggedized Beam Helmet (see page 2)—was developed by a cross-campus team led by Elizabeth Beam, PhD, RN, an associate professor in the College of Nursing.

The Startup of the Year award was presented to Alex Laskey, the CEO at Carecubes, Inc. The cornerstone technology of the startup is the Carecube, an elegant revision of personal protective equipment for healthcare workers. UNMC 's world-renowned team of infectious disease experts—including James Lawlor, MD, PhD; Mara Jana Broadhurst, MD, PhD; David Brett-Major, MD; Chris Kratochvil, MD—collaborated with OtherLab to develop a system that essentially wraps the patient in the protective equipment. This new approach allows healthcare workers to provide the highest standard of care while also minimizing potential exposure to airborne pathogens.

The Innovation Champion award, presented to the Maverick Technology Venture Alliance, rounded out the list of top award winners. Brent Clark, PhD, the associate director for the Center for Entrepreneurship, Innovation, and Franchising at UNO, and Lamonte Russell, the Strategy and Ventures Manager at the UNeTech Institute, accepted the award.





**GRAND
OPENING**

Catalyst unveiled in ribbon cutting

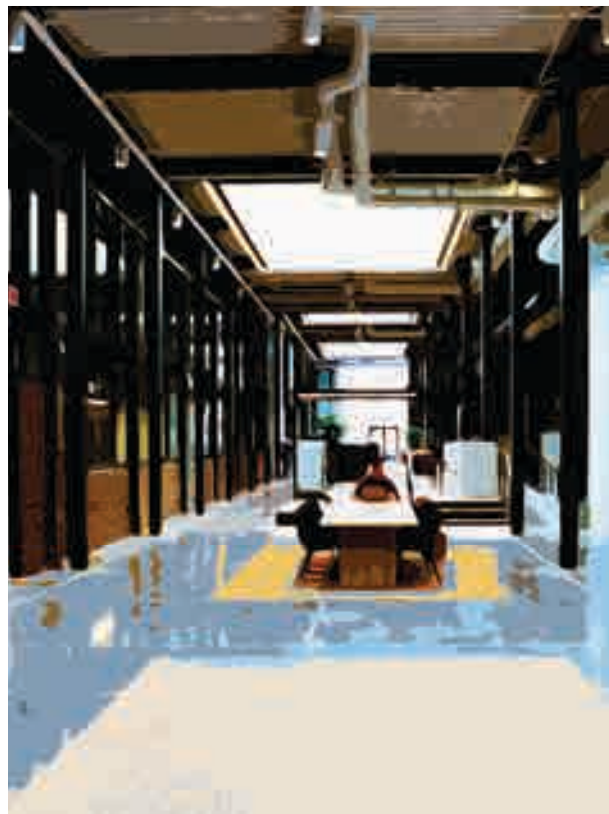
The Catalyst building in the Edge District officially opened to the public on May 28, 2025, with a ceremonial ribbon-cutting during a Grand Opening event.

The first of a three-phase development, the \$97 million cross-functional building is about 170,000 square feet that will house a combination of research scientists, healthcare professionals, entrepreneurs and investor groups.

UNeMed is among that first cohort of foundational tenants, a seemingly perfect fit for an office that specializes in commercializing university innovations and discoveries. In the last five years, UNeMed has processed 536 new inventions from UNMC and UNO innovators, leading to 81 license agreements and 15 startup companies.

“The upside is we’re around people that are thinking like us, want to do work like we do,” UNeMed CEO Michael Dixon told the *Nebraska Examiner*.

Catalyst was built on the ashes of Omaha Steel Casting, an industrial tract originally established back in 1906. The old foundry provided steel in the construction of the state capital building in 1922 and produced artillery shells and amphibious landing craft that stormed so many beaches during World War II.



A white robotic arm, likely a surgical robot, is shown in a space environment. The arm is extended diagonally from the top right towards the bottom left. In the background, a blue and white map of the Earth is visible against a black space. The text is overlaid on the top left and center of the image.

MEET
THE SURGICAL ROBOT TESTED IN
SPACE & APPROVED FOR USE ON EARTH

VIRTUAL INCISION

Spotlight shines on VIC

The previous 12 months were eventful for Virtual Incision Corporation, a surgical startup built on a cross-campus collaboration between UNMC and UNL.

During Bio Nebraska's annual event on Oct. 2, 2024, Virtual Incision was presented the Governor's Bioscience Award, which recognizes individuals and companies making significant contributions to the Nebraska bioscience industry.

The award followed Virtual Incision's major milestone reached in February: FDA approval.

Virtual Incision was also listed at No. 8 in *Fast Company* magazine's annual list of most innovative medical device makers in the world in the annual Spring edition. The full list includes 609 companies spread over 58 categories.

Finally, in June, the Association of University Technology Managers, or AUTM, published a story

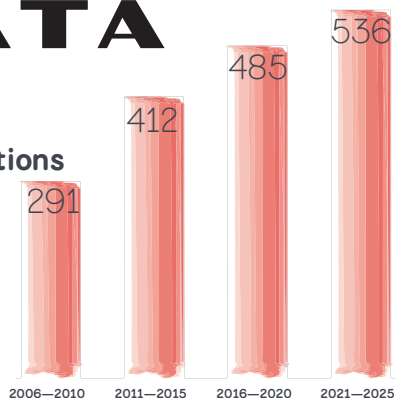
about Virtual Incision that examined the role that UNeMed played in helping establish the surgical robotics company. The article also highlights Virtual Incision's recent FDA-clearance and its potential to bring laparoscopic surgeries to remote areas, including orbit.

According to AUTM's website, the Better World Project "not only showcases the value of the technologies and their applications around the world, but also the important steps that build tech transfer success. There are examples of unique funding obtained by researchers, key collaborations with industry and the many contributions of tech transfer offices that have helped bring the research to life."

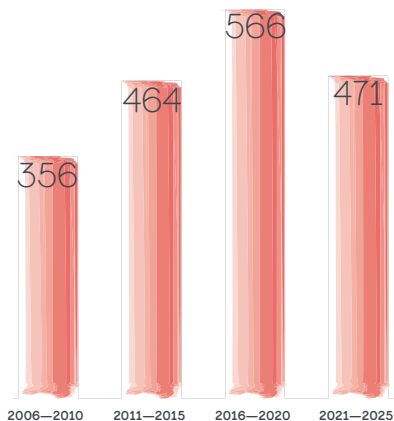
Other UNMC innovations featured in AUTM's Better World Project include stories about a one-dose malaria treatment; a device that better protects physicians during fluoroscopic procedures; and an intubation shield that protects care providers from infectious diseases.

HISTORICAL DATA

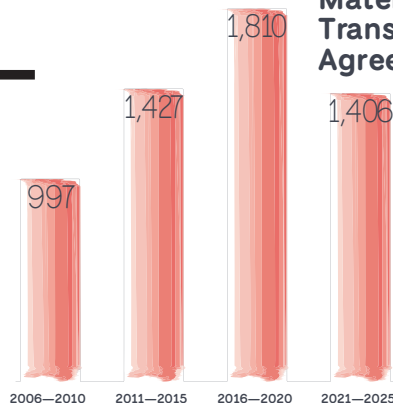
New Inventions



Confidential Disclosure Agreements



Material Transfer Agreements

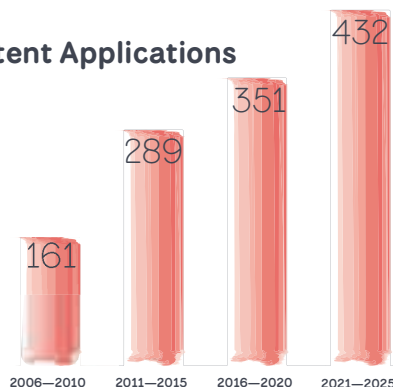


Shatters 7-year-old record (116) set in 2018 & the seventh in last eight years with 100+ new inventions



New record is first time with 100+, and a 29.7 percent increase over 2024; previous high was 99 new inventors in 2018, the same year that UNeMed expanded its services to include UNO

Patent Applications



Core Metrics

127 new inventions
197 unique inventors
118 new inventors

235 mta
64 cda
17 licenses
108 active licenses
133 opportunities

145 patent applications filed
57 total patents issued
33 U.S. patents issued
24 foreign patents issued

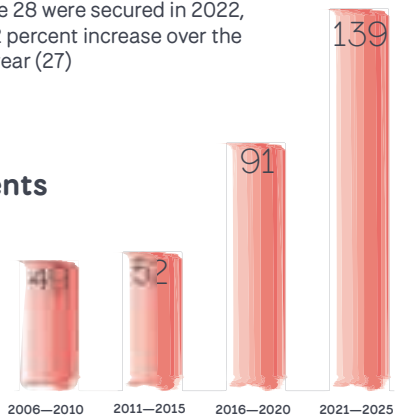
35 products on market
1 new startup

\$505,373 revenue
\$145,727 sponsored research



Record number of U.S. patents is the most since 28 were secured in 2022, and a 22.2 percent increase over the previous year (27)

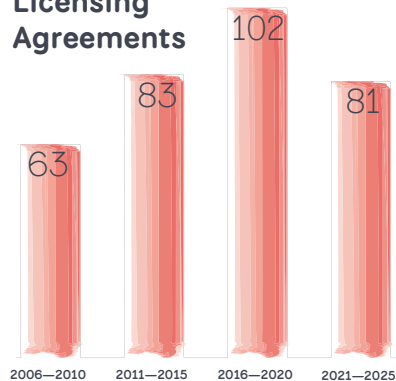
U.S. Patents



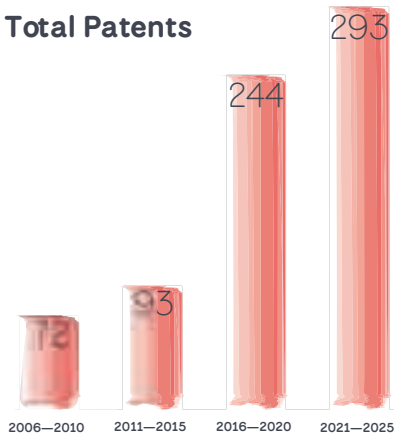
Startups



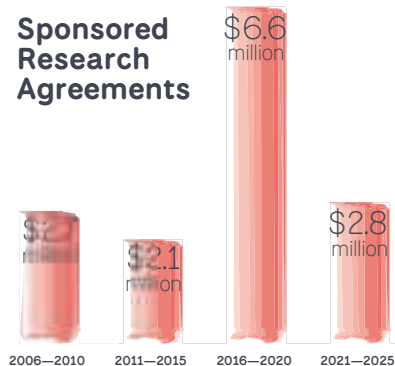
Licensing Agreements



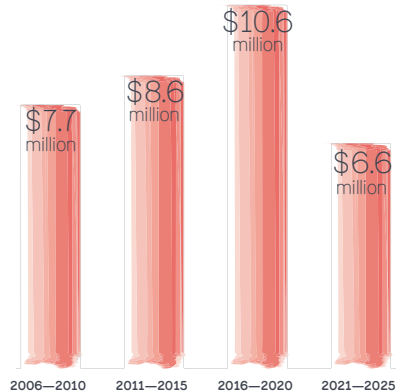
Total Patents



Sponsored Research Agreements



Total Revenue





**ENJOY
SAFER, EASIER & MORE COMFORTABLE
NASAL SAMPLES FOR SUPERIOR RESULTS**

MICROWASH

UNMC startup launches MicroWash product



MicroWash, a nasal sample collection device invented at the University of Nebraska Medical Center, is now available nationwide, launching earlier this year.

MicroWash is the cornerstone technology that helped build the startup, University Medical Devices, which closed a \$1.6 million seed round in 2024.

Invented by UMD co-founders—Emergency Medicine professor and former ER nurse Thanh Nguyen, PhD, and Emergency Medicine Chair, Michael Wadman, MD—the MicroWash device eliminates the need for a clinician to insert a swab into the deepest recesses of a patient's nasal cavity. More importantly, it also standardizes and simplifies the sample collection process.

MicroWash is a self-contained irrigation device that allows clinicians to easily and painlessly collect samples from a patient's nasal cavity. The innovation was born from the frustrations and discomfort of the traditional nasal swabs that gained notoriety during the COVID-19 pandemic.

MicroWash can be used by healthcare professionals with minimal training in diverse clinical settings.

It involves washing the nasal passage with sterile saline to collect a sample from the nose. The saline effluent specimen can then be used for diagnostic testing. Both internal and independent academic research supports MicroWash's superiority, from sample sensitivity to user experience.

In addition to increased comfort and ease of use, the MicroWash:

- ☐ Collects a 2 mL sample, with an increase in sensitivity of up to 49% when compared to nasal swab samples
- ☐ Has a long three-year shelf life
- ☐ Leverages the same lab processes with fewer extraction errors
- ☐ Decreases clinician infection risk and is easily and reliably administered

JOIN

**UNIVERSITY INNOVATORS & LOCAL
STARTUP COMMUNITY TO NETWORK,
COLLABORATE & BUILD NEW THINGS**



IDEA PUB

Morning Edition picks up steam

In fiscal year ending in 2025, UNeMed continued to offer its popular networking event, Idea Pub: Morning Edition.

It is a regular networking event aimed at helping University of Nebraska innovators and entrepreneurs connect and collaborate with colleagues and experts from the local venture capital and startup communities. It is free and open to all.

In addition to networking, Morning Edition features short, 10- to 15-minute presentations from a community partner involved in the innovation ecosystem or a University of Nebraska innovator with experience developing a new invention and building a startup company.

Originally held in the common area of the Durham Research Center, the January installment of Morning Edition was the first held in the new Catalyst building, located on the western edge of the UNMC campus, on Saddle Creek Road.

UNeMed created Morning Edition, launching the inaugural meeting on April 25, 2024. It has continued through today as an uninterrupted monthly event. December 2024 is the lone exception, when the event went on a one-month hiatus for the holiday season.

Each Morning Edition also features “Office Hours,” with UNeMed staff, Nebraska Startup Academy and MOVE Venture Capital founder Charlie Cuddy. Office Hours creates the opportunity for faculty, students and staff to have one-on-one time with MOVE or UNeMed professionals to discuss new technologies or startup potential.

MOVE is a pre-seed and seed venture capital firm focused on investing in Nebraska technology startup companies. The Nebraska Startup Academy is a mentoring program for startup founders, investors and the local entrepreneurial community with the aim of building Nebraska into “an innovation hub in the Midwest.”



**DETECT
DANGEROUS COPD SYMPTOMS BEFORE
IT'S TOO LATE, PREDICT THE UNPREDICTABLE**

RESPIRAI

COPD monitoring startup lands BIRD grant



A highly competitive and prestigious grant will support the development of an AI-powered home monitoring platform that can manage previously unpredictable chronic health conditions, according to a RespirAI press release.

Omaha's Right At Home will collaborate with RespirAI Medical on a monitoring program that is based on a research breakthrough born from a cross-campus collaboration at the University of Nebraska.

The Israel-U.S. Binational Industrial Research and Development Foundation (BIRD) grant will help expand the Tel Aviv-based startup's engagement in Omaha to further develop an AI-powered home monitoring platform for managing chronic pulmonary conditions, starting with COPD.

The project represents the culmination of a decade of development, starting with the pioneering research of former UNO biomechanics researcher Jenna Yentes, PhD, and UNMC pulmonologist Stephen Rennard, MD. That research is now the cornerstone of RespirAI's

innovative technology, which focuses on detecting what was once considered impossible—the early signs of a sudden flare-up of often deadly symptoms related to COPD.

Now fully-funded, the collaboration with Right at Home will develop a comprehensive home monitoring system that can track multiple chronic conditions and warn of potential health deterioration.

Through the UNeTech Institute's early support and incubation, and UNeMed's technology transfer expertise, RespirAI evolved from an academic discovery into a promising healthcare technology company.

“Watching RespirAI's journey from a research concept to securing international funding is deeply satisfying,” Joe Runge, Associate Director of UNeTech Institute said in the release. “The collaboration exemplifies the forward-thinking support provided in the state of Nebraska: Translating world class research into products that solve problems for Nebraska companies.”

Omaha startup clears FDA, hits market



Automated Assessments recently landed FDA approval in early 2025 for its medical device and is on the market and available for clinical use.

One of the co-founders is Jason Johanning, MD, professor of Vascular Surgery at UNMC and a nationally recognized expert on surgical quality. He invented Automated Assessment's frailty assessment tool, Vital-IT, a handheld device that helps surgeons and healthcare workers determine the potential risk and recovery requirements for surgical patients.

The system, produced and manufactured in Nebraska, represents a significant improvement over previous methods for performing frailty assessment and automates the whole process.

Previous approaches to pre-surgical risk screening was a physician's "eyeball" test. The field has moved to a more objective assessment by assessing frailty with a brief questionnaire.

While Chief of Surgery at the Omaha VA Medical Center, Dr. Johanning developed a more robust variation of the pre-operative assessment called the "Surgical Pause." It established a new standard measure of patient frailty assessments, and was awarded the Eisenberg Patient Safety and Quality Innovation Award by the Joint Commission and National Quality Forum.

UNeMed builds online form for submissions

There is now a streamlined way for any faculty, students or staff to submit their new ideas and discoveries.

UNeMed now has a digital form that inventors can use to submit their innovations, discoveries and ideas.

The New Invention Notification form is embedded on UNeMed's website at <https://www.unemed.com/new-invention-notification-nin>.

All inventions are accepted under strict confidentiality and are reviewed by the UNeMed team to determine both the intellectual property and commercial potential of the invention.

The traditional Microsoft Word version of the New Invention Notification will remain available and acceptable for any who wish to use it.

But the new online format proved to be popular. After the first submission on Feb. 28, there were 22 new submissions by the end of the fiscal year, or 17.5 percent of the record total (127) for the year.



Nebraska ranks No. 82 in world for U.S. patents

For the eighth consecutive year, the University of Nebraska system is among the global list of top 100 universities that have secured the most United States patents.

Nebraska ranks No. 82 with 47 listed patents for the 2024 calendar year. Among exclusively domestic institutions, Nebraska ranked No. 49.

The list is part of a report produced annually by the National Academy of Inventors and Intellectual Property Owners Association.

UNeMed, the technology transfer and commercialization office for UNMC and UNO—and their UNL counterpart in Lincoln, NUtech Ventures—helped secure the patents on behalf of University inventors and their collaborators.

Patents help attract the interest and support of corporate partners to fund additional development and commercialization. That might include large, legacy brand names or brand-new startup companies that create area jobs, products and tax revenue for the local economy.

Among the patents UNeMed helped secure are seven related to the work of Virtual Incision, a Lincoln-based startup that grew from a cross-campus collaboration between UNMC and UNL. Virtual Incision recently gained FDA approval for its surgical robotics platform and is currently available in use on the open market.

Another UNMC patent relates to the work of Howard Gendelman, MD, and Benson Edagwa, PhD, co-founders of Exavir Therapeutics. Their patented technology relates to long-acting formulations for the treatment of HIV.

Three patents relate to UNO innovations, including new anti-parasitic compounds; an NCITE-created chatbot for reporting possible terrorism threats; and a self-pacing treadmill that is the cornerstone technology behind Impower, an Omaha startup.

Additional patents UNeMed secured will protect University of Nebraska innovations related to shielding clinicians during fluoroscopic procedures; a tracking system for surgical saws used during implant procedures; and several other medical devices and discoveries.



**STAY COOL
TAKE A BREAK & BEAT THE HEAT EACH YEAR
WITH UNEMED & FRIENDS AT OUR ANNUAL DAY
OF FUN, GAMES & FROSTY TREATS!**

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