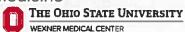
Improving People's Lives Through Innovations in Personalized Health Care

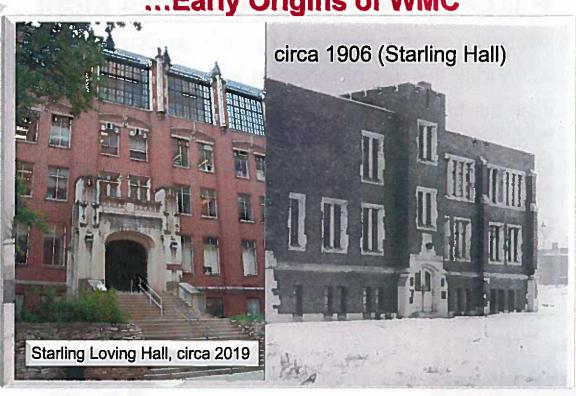
Ross Heart Hospital Past, Present & Future



Ernest L. Mazzaferri Jr, MD, FACC Medical Director, Ross Heart Hospital Charles A. Bush Professorship in Cardiovascular Medicine



Ohio State University Medical Center ... Early Origins of WMC



First Major Expansion of Medical Center

1925: a larger, state-of-the-art hospital opened at Ohio State, but quickly expanded again....

1928: Starling-Loving <u>University</u> Hospital had three wings that housed 296 beds and a maternity unit, a modern concept during a time when most



Surviving the 1930's-40's Research & Innovation takes flight

- Medical research began to flourish, as Ohio State:
- Advanced the use of radiation as a cancer treatment
- Was the first central Ohio hospital to use penicillin to fight infections
- Established departments of Psychiatry, Neurology and Pediatrics
- Created a two-year medical degree program in response to World War II's demand for doctors

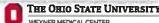




University Hospital ("Doan Hall") 1948

Expansion of University Hospital





1950's-1960's: the expansion outpatient facilities & some familiar names

- Following World War II, Ohio State's hospital and outpatient facilities grew to support growing patient care needs
- Physician scientists published many important studies, including these breakthrough discoveries:
 - Drs. Robert Zollinger and Edwin Ellison identified Zollinger-Ellison Syndrome, which traced some peptic ulcers to tumors in the pancreas or small intestine
 - In 1957, Dr. Howard Sirak led a team that developed a "heart pump" for use
 - In 1958, Dr. Bertha Bouroncle led a team that identified hairy cell leukemia
 - 27 years later, Ohio State scientists created the lifesaving drug to treat it.





Innovation in the 1960's



- The Hunt-Hess Scale gave physicians a method to classify the severity of subarachnoid hemorrhage that is still used today
- Ohio State surgeons performed central Ohio's first organ transplant
 - a kidney and advanced the field of organ and tissue transplantation through surgical techniques, organ preservation and anti-rejection medications.
- Ohio State physicians and dietitians pioneered sports nutrition, including the importance of vitamin D for calcium absorption and the athlete's need for water during exercise.



IVERSITY



Innovation in the 1960's

- 1966: James Warren begins discussion about pre-hospital care
- Ohio State
 Cardiologists and
 Columbus Fire
 Department
 created the
 nation's first EMS
 system and
 ambulance:

"The Heartmobile"



Source: Derek R. Cooney: Cooney's EM5 Medicine: www.accessemergencymedicine.com Copyright © McGraw-Hill Education. All rights reserved.

Innovation in the 1960's

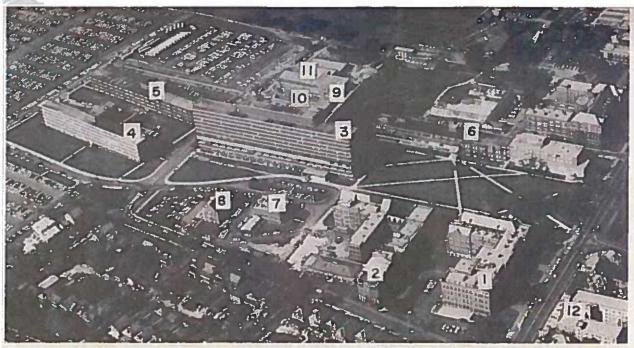


Dr. James Warren, Chief of Cardiology



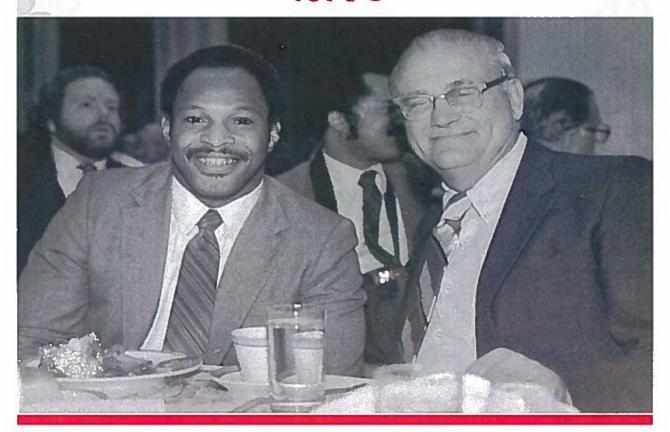


1970's ... A Growing Medical Campus



Buildings in The Chia State University Health Center are: (1) Hamilton Hall, beadquarters of the College of Medicine; (2) Starling Loving Hospital; (3) University
Haspital; (4) Ohio Tuberculosis Hospital; (5) Columbus Psychiatric Institute and Hespital; (6) College of Dentistry; (7) Kinsman Hall; (8) Ohio State Department of
Health Laboratories; (9) North Wing; (10) Radiation Therapy Unit; (11) Research Laboratories; (12) Nursing School Darmitory.

1970's



1970's

- Dr. Ernest Johnson wrote the first book on electrodiagnostic procedures to assess the health of muscles and the nerve cells that control them
 - Now in its fourth edition, the text has been renamed Johnson's Practical Electromyography
- Ohio State physicians pioneered helicopter transport of trauma patients
 - After returning from the Vietnam War, Dr. Stuart Roberts helped create the National Guard Helicopter Evacuation Program, a forerunner of today's medical helicopter transport programs
- 1976: the National Cancer Institute (NCI) designated
 The Ohio State University as a Comprehensive
 Cancer Center (CCC) a leader in cancer research
 clinically applied to patient care

1980's

- Ohio State was the first hospital in the Midwest to deliver a baby conceived through in vitro fertilization
- Ohio State obstetrics research improved treatments for women with high-risk pregnancies by identifying predictors for preterm birth and optimal care for women with gestational diabetes
- Ohio State performed its first bone marrow transplant to treat patients with leukemia.
 - Today, Ohio State is internationally renowned for leukemia treatment and research
- Ohio State became a leading national center in the research and treatment of HIV and AIDS, a distinction that continues today



July 26, 1986: First Heart Transplant at Ohio State Medical Center



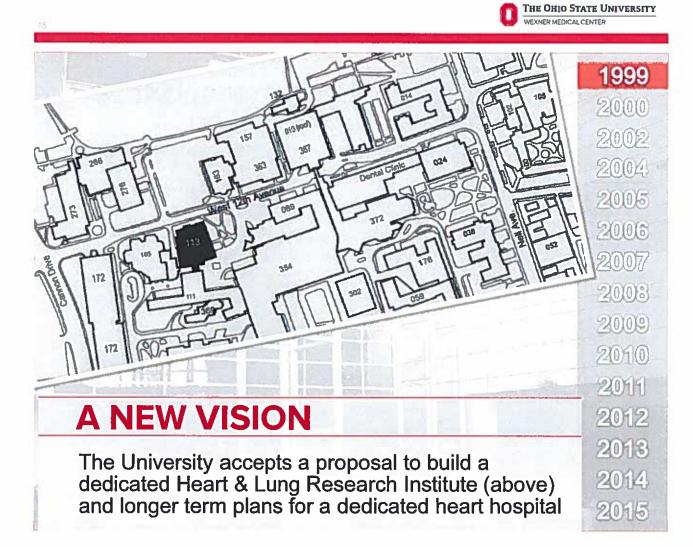


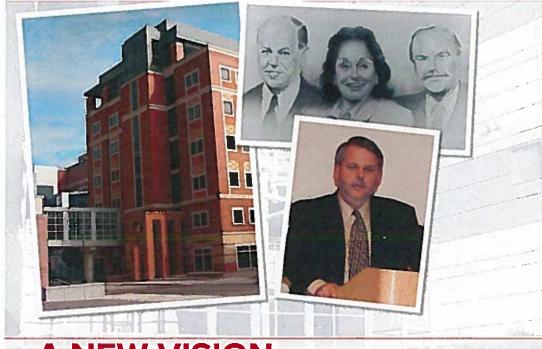
Expansion off campus in the 90's

Ohio State expanded beyond its campus borders, acquiring what is now University Hospital East, and merging its mental health services with those of Harding Psychiatric Hospital



In 1999, Ohio State surgeons were the first in North America to perform a robotic-assisted heart procedure with the Da Vinci Surgical System. Ohio State continues to be a leader in minimally invasive surgical techniques here.





A NEW VISION

Davis Heart and Lung Research Institute Opens (DHLRI)

A vision to integrate scientists with clinicians to create interdisciplinary teams, and push translational discovery in human heart and lung disease

A NEW VISION

Richard "Dick" and Elizabeth "Libby" Ross Philanthropic gift accelerates plans for dedicated Heart Hospital

Libby Ross made the donation in honor of her tate husband, Dick Ross (1916-1993). He was president of Ross Labs, the nation's leading manufacturer of infant formula, which began as a family business, M & R Dietetic, founded by his father Stanley along with Harry Moore in 1903



A NEW VISION

Richard M. Ross Heart Hospital construction commences

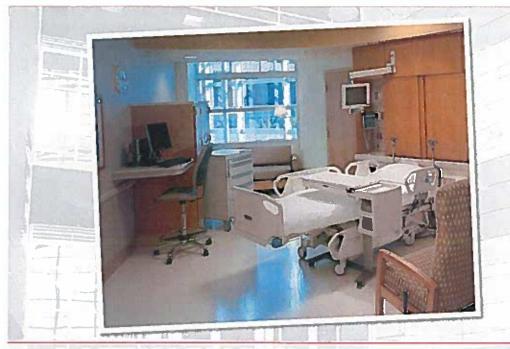


A NEW VISION

Richard M. Ross Heart Hospital Opens

1st academic medical center in the United States to build a comprehensive cardiovascular hospital on its campus

AMIM



A NEW VISION

Richard M. Ross Heart Hospital

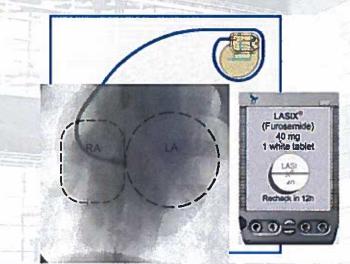
Universal bed care delivery model: care across the continuum

A DECADE OF EXCELLENCE

Richard M. Ross Heart Hospital: January

First patients cared for in new hospital

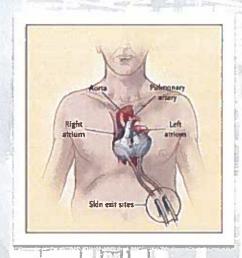
Implanted LA-pressure sensor guides Heart Failure medication adjustments, prevents decompensations



A DECADE OF EXCELLENCE

Richard M. Ross Heart Hospital: First in United States to Implant HeartPOD

2006: Central Ohio's first implantation of CardioWest artificial heart; an inpatient bridge to heart transplant





A DECADE OF EXCELLENCE

Richard M. Ross Heart Hospital: First in Central Ohio to Implant Artificial Heart



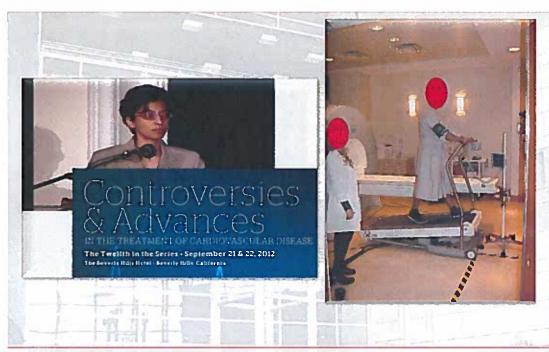
Richard M. Ross Heart Hospital

120 beds to 150 beds: Completes 2 floor expansion: 60,000 sq. ft. vertical addition



A DECADE OF EXCELLENCE

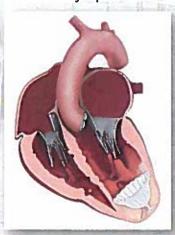
STEMI – ST-Elevation Myocardial Infarction Launch 1st Regional STEMI program in Ohio



Richard M. Ross Heart Hospital

One of the few centers in the world performing MRI safe treadmill stress testing in research protocol

March 21, 2008 – A central Ohio man has become the first person in the U.S., and only the 16th worldwide, to receive a heart implant called the CardioKinetix VPD Implant System designed to improve the heart's pumping action and help manage congestive heart failure symptoms.







A DECADE OF EXCELLENCE

Richard M. Ross Heart Hospital

First in United States to implant LV partitioning device



Heart Partnership with Memorial Hospital of Union County

Expanded cardiac care to the Marysville community



A DECADE OF EXCELLENCE

Received Beacon Award of Excellence

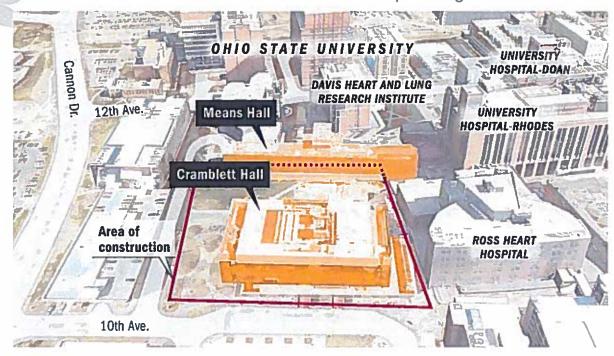
4 Ross Cardiac Surgery

Nursing Excellence in the intensive care environment

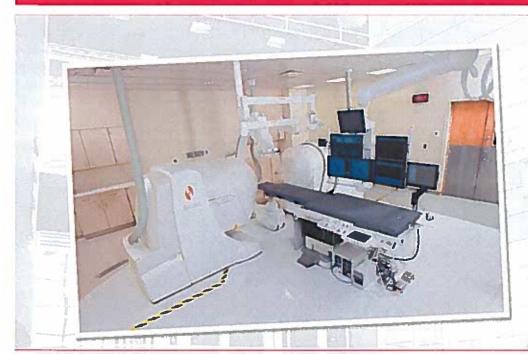
Excellence of the highest quality measures, processes, structures and outcomes based upon evidence Excellence in collaboration, communication and partnerships that support the value of healing and humane environments

2010- Medical Campus

Discussions for new James Cancer Hospital Begin







A DECADE OF EXCELLENCE

Largest Electrophysiology Services (EP) Team in Ohio

Addition of 3 labs, 1 cath lab, recovery area Top 5 for volumes in the nation



THE OHIO STATE UNIVERSITY

WEXNER MEDICAL CENTER

2012: recognizing the leadership and benevolence of philanthropist Leslie H. Wexner, we become The Ohio State University Wexner Medical Center

 Ohio State introduces electronic medical records and OSUMyChart, where patients can request appointments, renew prescriptions and review their health history online









A DECADE OF EXCELLENCE

Radial Lounge opens

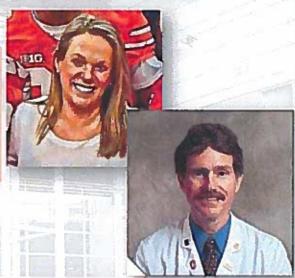
easing recovery for our heart catheterization patients

2012

20132014

Gives patients immediate access to the highest levels of care for a variety of cardiovascular emergencies

STEMI
Cardiogenic Shock
Aortic Dissection
Critical Limb Ischemia
Acute Pulmonary
Embolism



A DECADE OF EXCELLENCE

LEVEL 1 Emergency program launches: First in Ohio

BEACON
FOR EXCEILENCE

A DECADE OF EXCELLENCE

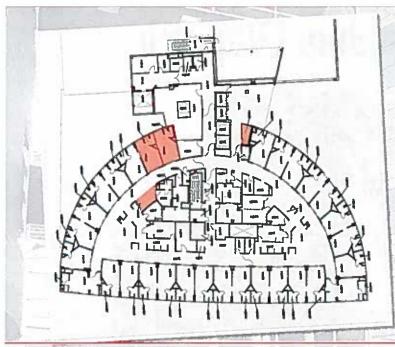
Received Beacon Award of Excellence

2 Ross Critical Care

Nursing Excellence in the intensive care environment

Excellence of the highest quality measures, processes, structures and outcomes based upon evidence

Excellence in collaboration, communication and partnerships that support the value of healing and humane environments





A DECADE OF EXCELLENCE

A partnership with Zusman Hospice of Wexner Heritage Village on 6 Ross

Furthering the continuum of care...

"where the heart and soul are as important as the meds and the monitors"







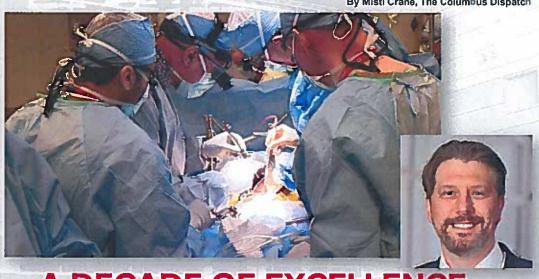


A DECADE OF EXCELLENCE

Launch of the Ross Heart Hospital Wellness Series

Fitness, nutrition and education events offered yearround to improve heart health 

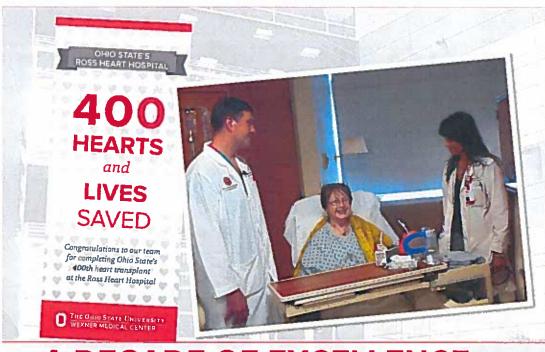
By Misti Crane, The Columbus Dispatch



A DECADE OF EXCELLENCE

Lung Transplant Program Relaunch

After a 4 year hiatus, Bryan Whitson MD, PhD leads Ross Heart Hospital Lung Transplant program



A DECADE OF EXCELLENCE

Completes 400th Heart Transplant



CardioMems Wireless Monitoring Device

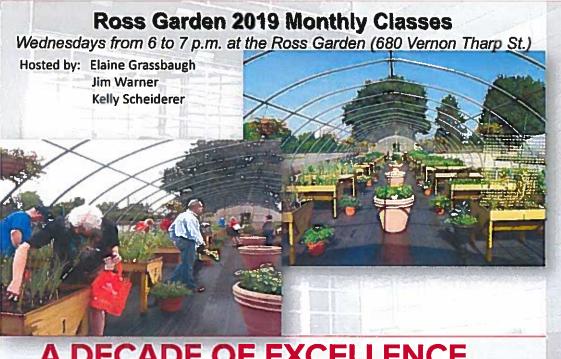
1st implant in the United States by Dr. Ayesha Hasan: CardioMems wireless heart failure monitoring device



A DECADE OF EXCELLENCE

Elizabeth M. Ross Nursing Fellowship

one-year fellowship providing a full-time nurse in the Ross Heart Hospital with the opportunity to explore career enhancement through classes, educational opportunities and project-based work within the Wexner Medical Center and the College of Nursing



Ross Community Garden Established

The purpose of the garden is to improve the health and wellness of its visitors by educating them on the importance of healthy eating, cooking and nutrition. The garden is open to Ross Heart Hospital patients, caregivers and community members. Weekly classes will begin in May and run until September. Harvesting sessions will follow each class beginning in June.

A DECADE OF EXCELLENCE

Heart Mate 3 LVAD implanted

Ohio State was first in Ohio and one of the first 10 medical centers in the US to test the HeartMate III left ventricular assist device (LVAD), which is smaller and entirely magnetically levitated—designed to produce fewer complications than its predecessor, HeartMate II.

2015 1999 20000 2(0(0)2 2(0)(0)4 2005 2(0)(0)(6) 2(0)(0)7/ 2008 2(0)0)9) 2(0)1(0) 2011 2012 2013

2014

2015

1999

220(0)0

2002

2004

2005

2(0)0(6)

2(0)07/

2008

2(0)(0)(9)

2010

2011

2012

2013

2016: Wexner Medical Center USNWR Rankings

Ohio State University Wexner Medical Center is in the Top 1%

36 hospitals had 8+ ranked specialties



Ranked 25th overall

153 hospitals recognized in at least one specialty

Patient survival Patient safety Reputation Nursing staff Services Patient volume Technology

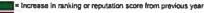
4,667 American Hospital Association Hospitals in the US



2016: Wexner Medical Center USNWR Rankings

Specialty	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Cancer	21	15	19	18	26	20	25	20	30	24	37
Cardiology & Heart Surgery				37	20	24	29	36	34	31	26
Diabetes & Endocrine	33		42	27	17	20	27	37		24	36
ENT	20	19	30	18	18	17	14	15	15	14	7
Geriatrics				Elevi			46	49			44
Nephrology	23	24	24	33	31	39	29	28	35	31	25
Neurology/ Neurosurgery	44				46	45		49		36	30
Pulmonology	24	41	27	23	34	25	30	33			33

^{*} Reputation-Only Rankings



Decrease in ranking or reputation score from previous year

^{No change in ranking or reputation score from previous year}



2016: A Journey to A Unique Clinical and Translational Research Platform



OSUWMC Ex Vivo Lung Perfusion Program

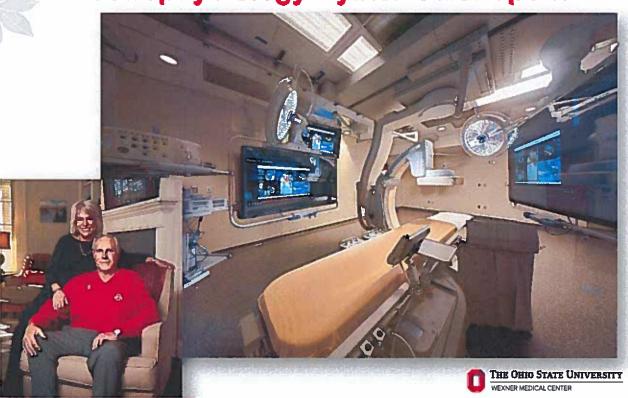
August 2016 to June 2017 9 of 38 transplants performed 23.7% of cases 31% Increase in lung transplants performed





THE OHIO STATE UNIVERSITY

2017: The Bob and Corrine Frick Electrophysiology Hybrid Suite opens



2017: Launch 1st ECPR for out-of-hospital arrest program in Ohio



DELIVERED, AND

MANUAL DEFIB 🚵

AS NOTED. AMIO CHANGES THROUGH

CONTINUED TO PE

Columbus Fire Department

3639 Parsons Ave Columbus OH 43207 (614)645-7384

Incident Number 17141350 Patient *** *** Complaint CARDIAC ARREST Case Status CLOSED

68yo in FULL ARREST w/ CPR....VFIB....DUAL SEQUENCIAL DEFIB....ECPR ALERT CALLED to OSU...ACLS protocol continues....Pt TAKEN DIRECTLY TO CATH LAB

SHOCKS L SEQUENTIAL D. INTUBATION ULTIPLE RHYTHM O INCIDENT. ET TATED AS

TUBE RECONFIRME U/A TO OSU WE WERE DIRECTED TO CATH LAB. PT CARE NOTED. PT WAS MONITORED DURING TRANSPORT W/ AND PEPORT WERE TRANSFERRED TO CATH LAB STAFF. M12 BIS, ALL TIMES ARE APPROXIMATE. NO PT HX OF INFORMATION WAS AVAILABLE OTHER THAN INFO FOUND ON PT ID.



Dr. Timur Sarac, Chief Vascular Surgery **April 2018**

- Founding director of Aortic Center at Ohio State, via Yale University and the Cleveland Clinic
- Nationally recognized vascular surgeon specializing in innovative technologies (hold 25 patents)
- 16 years in the Army Reserves awarded a U.S. Army commendation medal during the Iraqi/Afghanistan wars





Dr. Nahush Mokadam August 2018

 Dr. Mokadam is an international leader in heart failure who specializes in heart transplants and ventricular assist devices. He comes to Ohio State from the University of Washington Medical Center







August 31, 2018: 500th Heart Transplant

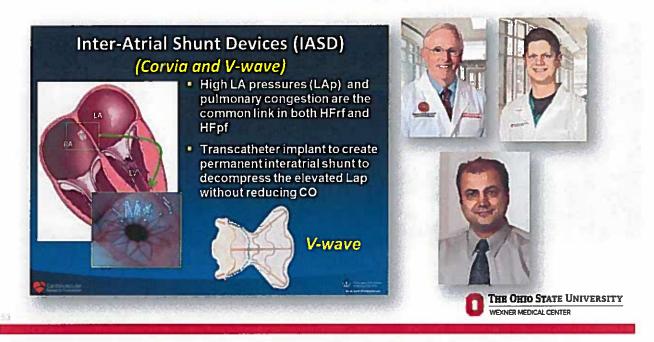


Peter Lee, MD led the surgery, assisted by Nahush Mokadam, MD, and many others from nursing, perfusion, anesthesiology, critical care and support staff teams. The patient's cardiologist is Sakima Smith, MD.

THE OHIO STATE UNIVERSITY WEXNER MEDICAL CENTER

Heart Failure First-in-US continues: Sept 2018

 Ohio State First in U.S. to Test New Device to Improve Heart Failure Symptoms

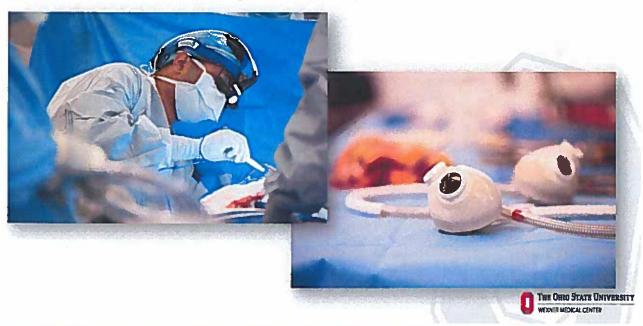


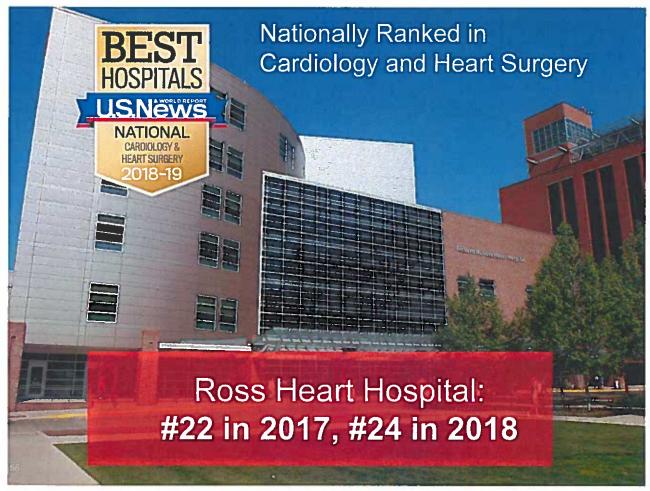
Sept 2018: OSU East becomes Level 3 Trauma Center



October 2018: Reinvigorating the Total Artificial Heart Program

Che Columbus Disparch: Ohio State University's Wexner Medical Center has implanted its first total artificial heart since January 2015, with plans to make it more accessible. The device is reserved for the sickest of the sick, with the hope of getting them to transplant.





Recognized For Excellence in 2018



MAGNET RECOGNIZED AMÉRICAN ROBES CARRESTANTA CENTRE



U.S. News & World Report

The Richard M. Ross Heart Hospital is ranked among the top 24 programs in the nation for cardiology and heart surgery by U.S. News & World Report and stands as the only heart program in central Ohio to achieve this ranking.

Magnet®

The Ross Heart Hospital has earned a <u>third Magnet®</u> designation by the American Nurses Credentialing Center. Approximately 7 percent of all registered hospitals in the United States have achieved Magnet status, and only 2 percent of registered hospitals have been redesignated.

Beacon

The Ross Heart Hospital's nursing staff on Two Ross has received the prestigious Beacon designation for the <u>second time</u>. Two Ross achieved this award at the silver level, signifying continuous learning and effective systems to achieve optimal patient care.



2018: Leading Heart and Vascular Care in Central Ohio



7,500+

Interventional cardiology procedures performed annually

2,700+

Annual cardiac and vascular surgeries

National leader

In implanting ventricular assist devices

Landmark 500+

Heart transplants performed in 2018 here at central Ohio's only adult heart transplant program

More than 270

Cardiovascular research projects underway



First

Level 1 cardiovascular emergency program in Ohio

600+

Researchers, faculty and staff at the David Heart and Lung Research Institute



55,000

Annual admissions and outpatient visits

165

Inpatient rooms

36

Outpatient recovery bays

One of the largest

Electrophysiology programs in Ohio and the region

Leading the way....as we look to the future





Davis Heart and Lung Research Institute (DHLRI)

600+ faculty, staff, students, fellows on DHLRI team

Researchers representing eight OSU colleges and nearly twenty different departments/divisions

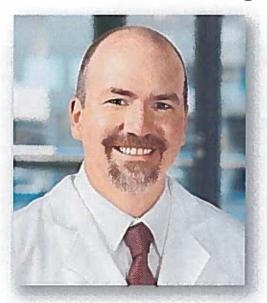
270 active clinical trials

10 clinical cores associated with heart and lung disease



Outstanding Investigator Award

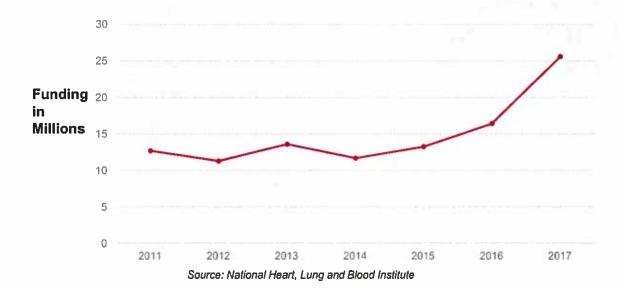
Peter Mohler, PhD NIH R35 Outstanding Investigator Award



- Vice Dean for Research:
- Director, Dorothy M. Davis Heart and Lung Research Institute;
- Chair, Department of Physiology & Cell Biology;
- Professor, Departments of Physiology & Cell Biology & Internal Medicine;
- William D. and Jacquelyn L. Wells Chair in Cardiovascular Research



NIH Funding Ranking Improved 27 Places in 5 Years





Pioneering a New Approach to Heart Valve Replacement

Scott Lilly, MD, PhD, Greg Rushing, MD, and Prasad Dasi, PhD

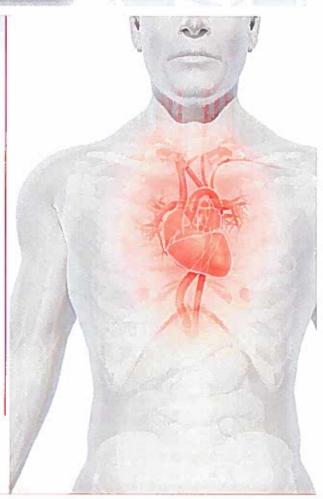
3D Modeling & Printing of Aortic Valve



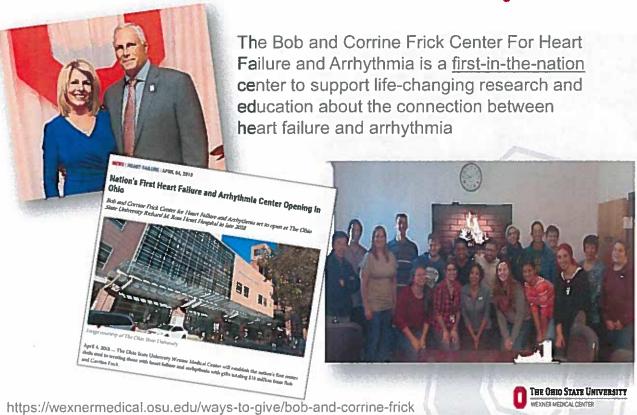


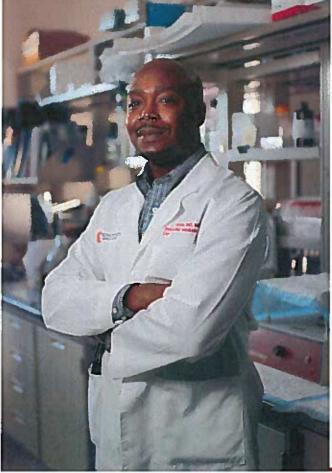
Ohio State Shares \$17.7 Million Award For Heart-Failure-Sleep Trial

- Ohio State leads a multicenter trial looking at oxygen therapy for patients with heart failure and central sleep apnea
- Enrolling 800+ people at more than 30 sites across the country



18 Million Dollar Gift to support the First Center in the Nation for Heart Failure and Arrhythmia



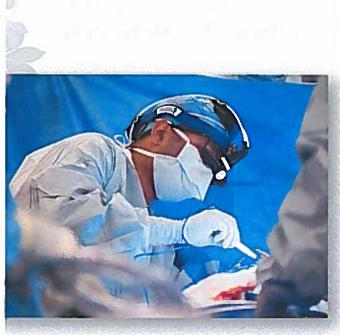




Advanced Heart Failure Center

- the largest heart failure program in central Ohio
- treating more than 2,000 patients and offering the full spectrum advance heart failure therapies
- Translational research
- High enroller in clinical trials
 - Including novel implantable devices
 - First in US implants

Sakima Smith, MD. Heart Failure and Transplant Medicine NIH funded investigator

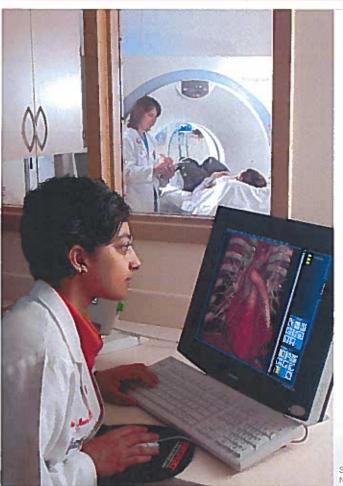


Nahush Mokadam, MD, Director, Division of Cardiac Surgery

THE OHIO STATE UNIVERSITY WEXNER MEDICAL CENTER

Heart/Lung Transplant and Mechanical Assist

- As central Ohio's only adult transplant program, Ohio State has performed more than 500 heart transplants
- We are home to a highvolume mechanical support program offering every available device option to our patients



THE OHIO STATE UNIVERSITY WEXNER MEDICAL CENTER

Leaders in Cardiovascular Imaging

Dedicated cardiovascular imaging center provides the most advanced imaging expertise in the region

- Cutting edge clinical care and quaternary referral center
- Internationally known researchers

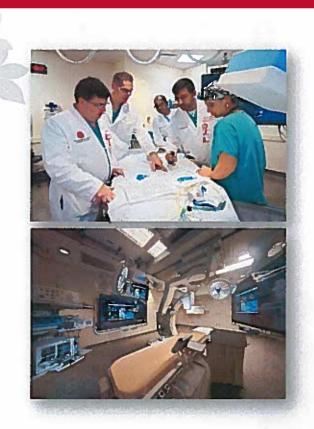
Subha Raman MD, Director, Advanced Cardiovascular Imaging NiH Funded Investigator





Leaders in Interventional Cardiology

- High-volume team of interventional cardiologists, performing more than 7,500 procedures each year
- Regional STEMI program
- Level 1 Program
- ECPR program
- Early adopter of radial artery catheterization 2010
- Novel clinical trials





Leaders in Arrhythmia Care

- Largest arrhythmia program in Ohio
- One of the highest volume programs in the nation
- Offering expertise in all forms of heart rhythm disturbances, most notably in atrial fibrillation ablation
- Leaders in genetic research for electrical abnormalities



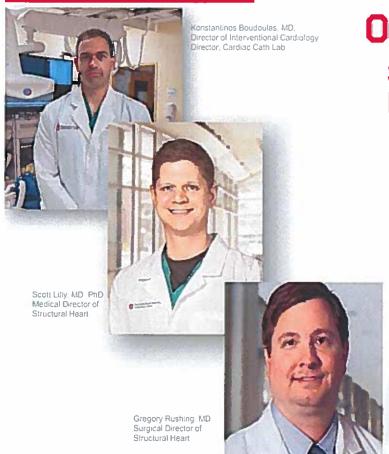




Integrated Vascular Center

- Fully integrated care for routine and complex vascular disease.
- Home to the area's only Aortic Center, combining multidisciplinary expertise from cardiac and vascular surgeons





THE OHIO STATE UNIVERSITY
WEXNER MEDICAL CENTER

Structural Heart Disease Center

- Excellence in the diagnosis, treatment and management of complex valve conditions
- Offer variety of clinical trials evaluating groundbreaking therapies for patients with structural heart disease
- Innovators of novel therapies and tools



Laxmi Mehta, MD. Director of Preventative Cardiology and Women's Cardiovascular Health

THE OHIO STATE UNIVERSITY WEXNER MEDICAL CENTER

Women's Heart Program

- The Women's Cardiovascular Health Clinic is one of only a handful of clinics in the country devoted to women's heart health
- Our experts are leading national research on the differences and disparities in women's heart care



Curt Daniels, MD, Director of the Adolescent and Adult Congenital Heart Disease Program



Adult Congenital Heart Disease Program (ACHD)

- Home to a dedicated team of specialists providing the region's leading care for congenital heart disease
- Our Adult Congenital Heart Disease (COACH) program consolidates specialized resources required for the care of adult congenital cardiac patients
- Widely recognized national leaders in COACH program





Richard M. Ross Heart Hospital

The Only Hospital in central Ohio nationally ranked in cardiology and heart surgery by U.S. News & World Report.

Our expert physicians and staff can treat any cardiovascular condition, and our researchers are continually turning today's science into tomorrow's treatments.

Thank You

wexnermedical.osu.edu

